A TEXTBOOK ON TOBACCO

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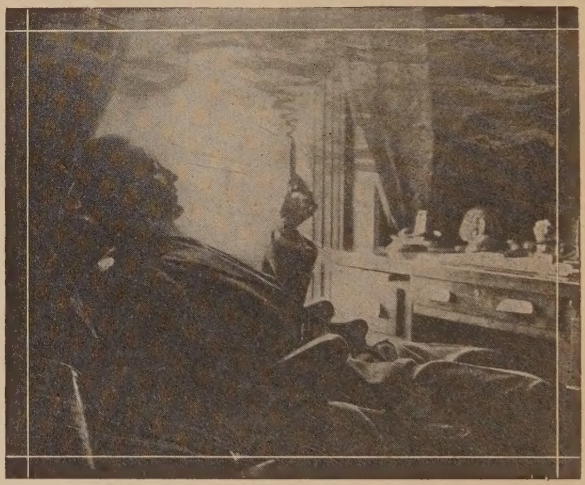

"THESE leaves make friends, and celebrate with gentle rites the vows of peace. They have given consolation to the world. They are the companions of the lonely—the friends of the imprisoned, of the exiled, of workers in mines, of fellers of forests, of sailors on the desolate seas. They are the givers of strength and calm to the vexed and weary minds of those who build with thought and dreams the temples of the soul. They tell of hope and rest. They smooth the wrinkled brows of pain, drive fears and strange misshapen dreads from out the mind and fill the heart with rest and peace. Within their magic warp and woof some potent gracious spell imprisoned lies, that, when released by fire, doth softly steal within the fortress of the brain and bind in sleep the captured sentinels of care and grief. These leaves are the friends of the fireside, and their smoke, like incense, rises from myriads of happy homes."

To JOHN BAIN, Jr.,
Whose unfailing encouragement, steadfast
co-operation and intimate knowledge
of the subject have been a constant
help and inspiration,
this volume is dedicated by
The Author.

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A TEXTBOOK ON TOBACCO

An Exhaustive Technical Treatise on the Culture, the Manufacture and the Merchandising of Tobacco and Tobacco Products

BY

CARL WERNER

Published by

The Tobacco Leaf Publishing Co.

82-92 Beaver St., New York

FOREWORD

IT is now five years since "A Textbook On Tobacco" made its appearance among the technical literature of the world. In a little over a year the first edition was exhausted and a second was issued, and later on a third impresssion was made necessary.

Now comes the fourth edition. It will be observed, however, that this latest issue of the book marks a radical departure from the former impressions.

The cordial reception which has been accorded each edition of the volume, and the readiness with which it has been established as the most authoritative technical work on tobacco and the tobacco business, has encouraged the author and the publishers to extend the scope and completeness of the book to a considerable degree. In fact neither time nor pains nor expense has been spared to make "A Textbook On Tobacco" in its present form as complete and comprehensive as it is possible for such a volume to be.

While not departing from the old policy of brevity and condensation, the new book contains more than twice as much material as the old, and it is the hope and belief of the author that it will be twice as interesting and twice as useful.

To the public and particularly to the tobacco trade the author wishes to extend his sincere thanks for the encouragement given for the generous manner in which they have indulged whatever shortcomings have been noticeable in previous editions, and for their splendid appreciation of whatever virtues those editions have possessed.

To those readers who have not seen the book in its previous form the author would like to say a word regarding its intent and purpose.

So pregnant is tobacco with poetry and romance that to treat the subject with the practicality and terseness necessary in compiling a textbook requires some little self-restraint on the part of any student of tobacco lore. But in preparing this work the aim was to furnish a volume of essential tobacco knowledge that could be used as a ready reference by the man who makes his livelihood in the cigar and tobacco line, and to present comprehensively all facts and technical information about tobacco, stripped of legend and sentiment and so arranged as to make the book a practical help to "the man in the business." In its compilation, therefore, every inclination to digress into the lighter vein has been steadfastly resisted, and it is earnestly hoped that the reader will find the volume to be, as the author intended it, a tobacco book for tobacco men.

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PART I

HISTORICAL

CHAPTER I

THE DISCOVERY OF TOBACCO BY COLUMBUS AND HIS SAILORS

Introduction of the Weed to the Civilized World—Origin of the Name—Where the Word "Cigar Comes From—Grows Everywhere

The tobacco of commerce is one of several plants of the genus Nicotiana, but more particularly Nicotiana Tabacum.

It is now generally agreed that the word is derived from "tobago," which was an Indian pipe. The tobago was Y-shaped, and usually consisted of a hollow, forked reed, the two prongs of which were fitted into the nostrils, the smoke being drawn from tobacco placed in the end of the stem. The island of Tobago, contrary to the belief of many, did not furnish the name for tobacco, but on the other hand, it was given that name by Columbus, owing to its resemblance in shape to the Indian pipe.

While tobacco is now found growing in all inhabited countries, it is a native of the Americas and adjacent islands. Its discovery by civilized man was co-incident with the discovery of this continent by Christopher Columbus in 1492. Columbus and his adventurous sailors found the native Indians using the weed on the explorer's first visit to the new world. Investigation has established that the plant was first used as a religious rite and gradually became a social habit among the natives. Columbus and his Castilian successors carried the weed to Spain. Sir Walter Raleigh took it to England, Jean Nicot, whose name is immortalized in Nicotine, introduced it to the French; adventurous traders brought the seed to Turkey and Syria, and Spanish argosies carried it west-

ward from Mexico to the Philippines and thence to China and Japan. Thus within two centuries after its discovery, tobacco was being cultivated in nearly every country and was being used by every race of men.

ORIGIN OF THE WORD "CIGAR"

Of course, every name has its derivation, but some of them are so far from their original meaning that there is great interest attached to the method in which the word was adopted. An example of this is to be found in the word "cigar."

Nearly every one knows that "cigar" is from the Spanish, but few people, probably, know that the word "cigar" really means "garden." It is not because a really good cigar has an aroma that might be likened to a flower garden by some one in love with the weed, but simply that tobacco was grown in a private garden in Spain by the wealthy men who looked upon it as a very rare and valuable plant.

When tobacco was first brought to Spain from its native land, America, and the Spaniards really understood its value for smoking, the Spanish dons had quantities of it planted in the gardens about their homes. Every Spanish grandee has a private garden for rare vegetables, fruits and flowers.

To be able to import your own tobacco seeds or plants and grow your own tobacco and make it into rolls for smoking was the height of aristocracy in those early days, and a Spaniard of high class entertaining a friend would, upon offering him a smoke, say, with pardonable pride, "Es de mi cigarral," which means "It is from my garden." In this manner was the guest assured that it was newly cured, clean tobacco, and prized the smoke accordingly.

But the foreigners, through some misunderstanding, hearing their hosts always speaking about the smokes they gave as "Es de mi cigarral," got to believe that the word "cigarral" was Spanish for tobacco, and in time they began to use this word

shortening it to "cigarro," as meaning a roll of tobacco for smoking. And from "cigarro" to our word "cigar" was a simple bit of word evolution, so to this day we call the smoothly rolled leaves of tobacco "cigars."

But there is a stranger thing than this back of the word "cigar." That is, the meaning, originally, of the Spanish word "cigarral." "Cigarral" means "grasshopper," and because in Spain the grasshopper always gathered in larger quantities in the gardens and chirped the loudest there, the little house gardens were called by the Spaniards "cigarral," or places where the grasshoppers are thickest. So that today our word "cigar" is derived from "garden," which was, in turn, derived from "grasshopper."

WHERE TOBACCO GROWS.

While tobacco is a native of the Americas, it is a fact that it will grow after a fashion almost anywhere. Milton Whitney, Chief of the division of Soils, United States Department of Agriculture, in his bulletin on tobacco soils says tobacco can be grown in nearly all parts of the country even where wheat and corn cannot economically be grown. The plant readily adapts itself to the great range of climatic conditions, will grow on nearly all kinds of soil and has a comparatively short season of growth. But while it can be so universally grown, the flavor and quality of the leaf are greatly influenced by the conditions of climate and soil. The industry has been very highly specialized and there is only demand now for tobacco possessing certain qualities adapted to certain specific purposes. * * * It is a curious and interesting fact that tobacco suitable for our domestic cigars, is raised in Sumatra, Cuba and Florida, and then passing over our middle tobacco States the cigar type is found again in Massachusetts, coarse sandy lands of the Pine Barrens, to the heavy, clay, limestone, corn and wheat lands. The best soil for one kind of tobacco, therefore, may be almost worthless

for the staple agricultural crops, while the best for another type of tobacco may be the richest and most productive soil of any that we have.

CHAPTER II

HISTORY OF THE INDUSTRY IN THE UNITED STATES

In 1732 It Was Made Legal Tender in Maryland—Extension of the Industry—First Cigars and Cigarettes Ever Made

Tobacco was grown in this country long before the arrival of the first settlers. According to the Yearbook of the Department of Agriculture it early attracted the attention of the colonists, and for nearly two centuries was identified with their social, economic and political development, especially in Maryland and Virginia. In Maryland it was made legal tender in 1732 (at the rate of one penny per pound) for all debts, including customs dues and the salaries of State officers and ministers of the gospel. The yield of tobacco in that year was 30,000 hogsheads for Maryland alone. As late as 1777 the tax levied for Baltimore County and city was fixed at 172 pounds of tobacco per poll.

Maryland and Virginia, the Pioneers.

At the beginning of the present century the dark export types of Virginia and the light pipe-smoking tobacco of Maryland were the only classes of tobacco grown in this country. It has been within the present century that the cigar, the lemon-yellow cigarette, the mahogany manufacturing, the Burley, and Perique types of tobacco have been developed.

In 1812 the demand by foreign countries for colored tobaccos was so great that artificial heat was employed in curing. In this way the piebald, or spangled, tobacco of Virginia was developed. Until 1828 wood fires were the only artificial means known of curing tobacco. About this time flues and charcoal fires

began to be used. It was not until 1865 that flue curing entirely superseded charcoal fires in the production of the bright yellow varieties, now so popular and used as cigarette, plug and twist wrappers.

In 1825 the amount of tobacco produced in Maryland was about 15,000 hogsheads; in 1846 it was 41,000 hogsheads, and in 1860 it was 51,000 hogsheads, this being the largest yield ever produced in that State. During the civil war the yield decreased, and in 1865 it was only 25,000 hogsheads. In 1878 the yield again increased to 46,000 hogsheads, while in 1890 the lowest production of the State was recorded, 14,000 hogsheads. In 1892 the yield rose to 27,000 hogsheads. The Maryland tobacco is consumed principally in Holland, France and Germany.

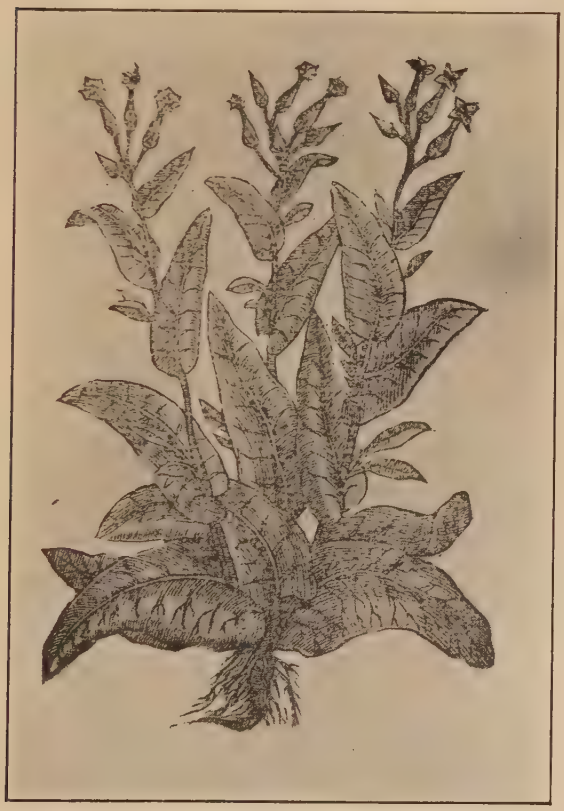
Extension of the Industry.

Although some tobacco was grown during the time of the early settlements in Pennsylvania and New England, the first real extension of the industry was westward, in Kentucky and Tennessee. In 1785 tobacco production was of considerable importance in northern Kentucky and the adjoining counties of Ohio, while in the central and southern portions of Kentucky and Tennessee this industry came into prominence about the year 1810. The tobacco produced here was the dark, export type that has always prevailed in these localities. Up to the year 1833 by far the largest part of the tobacco grown in these two States was sent by the planters in boats to New Orleans for shipment to foreign countries. In that year, however, warehouses were established in Clarksville, Tenn., and soon others sprang up in Louisville, Ky., and in the surrounding towns of these States.

The first crop of lemon-yellow tobacco was produced in 1852 on a sandy ridge in Caswell County, N. C. This tobacco was received with such special favor that its cultivation spread rapidly in Caswell County and also in Pittsylvania County, Va. During the civil war there was almost an entire abandonment of its production, but after the war attention

was again called to this tobacco as being very desirable for plug fillers and wrappers. As flue curing came into general use about this time, a much superior

EARLIEST PICTURE OF TOBACCO



From a wood-cut in Gerarde's Herbal, 1597

article was produced. The price rapidly rose with the increase in the demand, and the cultivation extended into other countries in North Carolina and Virginia and spread into South Carolina and eastern

Tennessee. In 1876 there were 43,000 acres planted in this tobacco, yielding 20,000,000 pounds; in 1879 the acreage was 57,000, yielding 26,926,000 pounds. Since that time this tobacco has continued to grow in popularity and the increase in acreage still continues.

The First Cigarettes Made.

The manufacture of cigarettes began about 1864, in which year 19,770,000 were made. These apparently did not take well, as in 1869 the number of cigarettes manufactured was only 1,750,000, but since that time the annual output has steadily and rapidly increased.

In 1864 the White Burley tobacco was originated through a sprout from the Red Burley in Brown County, Ohio. This tobacco at once found favor as coming midway between the light smoking varieties of Maryland and the dark export types of Virginia, Kentucky and Tennessee. On account of the absorbent powers of this leaf, it is particularly well adapted to plug fillers and plug and twist wrappers. The finer types are used for cigarette cutters and wrappers, while the light, flimsy, overripe bottom leaves are used for pipe smoking. The cultivation of this tobacco rapidly extended over the limestone area of southern Ohio and the central and northern sections of Kentucky. The cultivation of this tobacco is still confined to the limestone soil of this area.

Connecticut Tobacco and the Cigar Industry.

Tobacco was grown in the New England colonies during the years from 1640 to 1650, but from that time up to the early part of the present century it was almost abandoned. In 1825 the industry had been revived and developed to such an extent that the first warehouse was established at Warehouse Point, Conn., where 3,200 pounds were packed and shipped to New York. In 1840 tobacco became a general crop, about 720,000 pounds being produced in the Connecticut Valley. In 1842 the yield had increased to 2,000,000 pounds, and in 1845 to 3,450,000 pounds, at which time

the cultivation was extended into the Housatonic Valley. About 1833 the Broadleaf variety, having a

A Bunch of Tobacco Seeds

silky, delicate leaf with regular veins, nearly tasteless and of fine texture and finish, was originated.

Previous to 1845 the price ranged from seven to four cents per pound, but in 1847 it rose to forty cents per pound.

The First Cigars Made.

During the first part of the present century the Connecticut tobacco was recognized as being essentially different from the Virginia types, and it began to be used in the manufacture of cigars. About 20,000 pounds of tobacco were produced in the Connecticut Valley in 1801, about which time the making of cigars was begun in a small way, the first factory being established in 1810. During the early development of this industry cigars were peddled through the country in wagons.

It was about this time that the first importation of Cuban cigars of any consequence was made.

The following shows the gradual increase in the number of cigars manufactured in the United States from 1860 to 1892:

Number of cigars manufactured in the United States in 1860, 1875, 1885 and 1892.

	Number
1860	199,000,000
1875	1,926,000,000
1885	3,358,000,000
1892	4,548,000,000

The First Tax on Cigars.

The first tax on cigars, chewing and smoking tobaccos and snuff was imposed by act of Congress of July 1, 1862, which took effect September 1 of the same year. The first tax on cigarettes was imposed in 1864. Licenses for dealers and manufacturers were not required until 1868.

Introduction in Various States.

Pennsylvania.—The cultivation of tobacco in Pennsylvania began in 1689, but little attention was paid

Tobacco in Flower

to the industry until 1828, when it began to be of commercial importance. In 1840 Pennsylvania produced 325,000 pounds of tobacco in York, Lancaster and Dauphin Counties, the present tobacco centers of the State. In 1845, in consequence of the Mexican war and the increased value of wheat, the cultivation of tobacco declined; but it developed rapidly between 1849 and 1859. In 1859 the yield was over 3,000,000 pounds. There was little increase in the yield until 1870; and in 1879, 36,900,000 pounds were produced, at which time Pennsylvania ranked third among the tobacco-growing States of the country.

Ohio.—Cigar tobacco was first grown in Ohio in 1838, seed having been brought from Connecticut. In 1850 some 800,000 pounds of the seed-leaf variety were produced. During the years 1863, 1873 and 1880 the yield reached 1,200,000 pounds. The Little Dutch was introduced into Ohio from seed imported from Germany about 1869. In 1879 the total yield of this variety was about 500 cases. The Zimmer Spanish, a hybrid of the Cuban variety, was introduced about 1878. The Little Dutch and Zimmer Spanish, especially the latter, found great favor as cigar fillers. This largely increased the production of these tobaccos, supplanting to a considerable extent the seed-leaf variety.

New York.—The introduction of tobacco into New York State occurred in the year 1845; in 1855 Onondaga County alone produced 500,000 pounds, and in 1863 the cultivation had greatly extended and had reached considerable importance in several counties. From 1862 to 1864 New York tobacco brought a good price, selling for as much as thirty cents per pound. From this time on the price has varied greatly, ranging from five to twenty-five cents, and at times even to thirty cents per pound. In 1879 the crop of the entire State was estimated at 6,480,000 pounds.

Wisconsin.—Tobacco was introduced into Wisconsin in 1850, when 1,260 pounds were produced; in 1860 the yield was 87,000 pounds; in 1870 it was 960,000 pounds, and in 1889 it was 19,123,000 pounds.

FLORIDA.—Tobacco was introduced into Florida about the year 1829; ten years later this tobacco had taken a place of considerable importance as a cigar-wrapper leaf, being especially noted for its broad, silky, beautifully spotted leaf. This is still remembered as the "Old Florida speckled leaf," the cultivation of which was entirely abandoned at the outbreak of the civil war. About the year 1888 attention was again called to the possibility of producing a desirable cigar leaf in Florida; but with the importation to this country of the Cuban tobacco, which began in large quantity in 1860, and of the Sumatra some years later, the market had changed and the "Old Florida" was no longer acceptable to the cigar trade. The Cuban and Sumatra types have formed the basis of the present development of the tobacco industry in Florida.

LOUISIANA.—The culture of tobacco was begun in the State of Louisiana about the time of the settlement of New Orleans. In 1752 the Government of France offered to purchase all of the tobacco raised in that province at a price equivalent to $7 per hundred pounds. During 1793 and 1794 the production of tobacco was stimulated by the ravages of insects on the indigo plant, which, previous to this time, had been a staple crop. In 1802, 2,000 hogsheads were exported from New Orleans, and the culture had extended along the Mississippi River as far North as Natchez. As this tobacco had no particular excellence, it was soon supplanted by the Kentucky and Tennessee tobaccos, which were of a much superior quality. In 1824 Acadians introduced a new method of curing, by which the tobacco was cured, under intense pressure, in its own juice. This Perique tobacco, for such is the name of the Louisiana variety, while very strong, has peculiar properties which are acceptable to pipe and cigarette smokers, especially when mixed in small proportions with other tobacco. On account of the long and laborious method of curing, the cultivation has never extended beyond two or three parishes in southern Louisiana; nor has it been placed upon a successful commercial basis, except among the Acadians.

PART II

LEAF TOBACCO

CHAPTER III

GENERAL CLASSIFICATION OF LEAF TOBACCO

Terms by Which the Various Strains Are Commonly Known to Manufacturers—The Domestic and Imported Kinds

The peculiar requirements of the various manufactured products of tobacco have, in the course of time, led to a classification of leaf according to types and localities. In this chapter we will enumerate these various classifications, and give a description of each.

TOBACCOS FOR CIGAR PURPOSES.

CLASSIFICATION.

Domestic—Connecticut (Havana Seed and Broadleaf), New York State (Big Flats and Onondaga), Pennsylvania (Broadleaf and Havana Seed), Ohio (Gebhardt, Zimmer Spanish and Little Dutch), Wisconsin, Florida, Georgia and Texas.

Imported—Havana (Vuelta Abajo, Partidos and Remedios), Sumatra, Porto Rican, Mexican and Philippine.

DESCRIPTION.

CONNECTICUT: HAVANA SEED AND BROADLEAF.—The annual production of Connecticut (New England) tobacco is about 30,000,000 pounds. The Connecticut Valley produces two types of wrapper leaf, the Broadleaf and Havana Seed leaf, both varieties being air cured, packed in cases holding about 300 pounds, and left to ferment during the Winter, Spring and Summer months. This tobacco is sampled and sold at private sale, the packing usually being done by those who buy the tobacco from the farmers.

The Broadleaf variety has a broad silky leaf, very elastic, about two-thirds of the leaf from the tip possessing rich grain and color. Small veins are also a

characteristic of this leaf. There is only one small area in the Connecticut Valley adapted to the production of this type.

The leaf of the Havana Seed is smaller than the Broadleaf, much narrower, and is exceedingly thin and silky, but possesses less elasticity and covering quality. It does not possess the rich grain of the Broadleaf; the middle and lower parts are glossy and have large veins. This portion of the leaf is not desirable for wrapper purposes. The heavier leaves and those slightly damaged or of uneven color are used as binders. Badly torn leaves and the trash are not suitable even for fillers, but are sold at a low price for export tobaccos. Both the Broadleaf and Havana Seed are graded into light, medium and dark wrappers, and light and dark seconds, all grades being arranged in four lengths. The Connecticut wrapper competes with the imported Sumatra, being the nearest to it of any of the domestic tobaccos except that grown in Florida from the Sumatra seed.

New York State: Big Flats and Onondaga.—The production in New York State amounts to about 7,000,000 pounds annually. The tobacco is used largely for binder purposes. The Big Flats and Onondaga varieties derive their names from the section of the State in which they are grown.

Pennsylvania.—The production in that State is about 40,000,000 pounds. The tobacco produced in Pennsylvania is characterized by a long, broad leaf. It is air cured and packed in the same way as the Connecticut Valley tobacco. The Pennsylvania tobacco has a dark, heavy-bodied leaf, unsuited for wrappers, but used mainly for fillers and binders. Some good wrapper leaf is grown on the light alluvial soils near the rivers. As a filler leaf this tobacco competes with the Zimmer Spanish, Little Dutch and Florida-grown Cuban, and it is used mostly in the production of stogies, cheroots and other low-priced cigars. This tobacco is assorted by the packers into the following grades: eighteen inch, twenty inch, twenty-two inch and twenty-four inch light and dark wrappers and binders, the shorter sizes being graded as fillers and

called Pennsylvania B's.

Ohio.—This State produces about 25,000,000 pounds, mainly a filler crop, of Zimmer Spanish and Little Dutch varieties. The Zimmer Spanish is a small leaf, in appearance closely resembling the imported Cuban tobacco. This type was originated about twenty years ago, since which time it has rapidly grown in favor as a filler for domestic cigars, being considered by the trade the best filler leaf grown in the United States. This tobacco is graded more carefully than any other tobacco grown in this country, except that grown in Florida. The Cuban method of fermentation is being adopted by those who handle the Zimmer Spanish. The Little Dutch is a close second in popularity to the Zimmer Spanish. It is manipulated in the same manner, but the grading is not so closely or carefully made. The leaf is larger than the Zimmer Spanish, and departs further in appearance from the imported Cuban. A small quantity of seed leaf, known as Gebhard, is produced in Ohio as a wrapper leaf, but as it is inferior to the Connecticut the acreage is rapidly diminishing.

Wisconsin.—The production in Wisconsin is about 40,000,000 pounds, and is recognized as a binder leaf, which is frequently used with the Connecticut wrapper and the Pennsylvania or Ohio filler.

Florida.—In this is included also some tobacco grown in Georgia and Texas, amounting altogether to about 12,000,000 pounds a year. The method of packing Florida tobacco differs from other cigar tobacco named heretofore, in that it is packed in bales like Sumatra or Havana, while the others, excepting that grown under artificial shade in Conecticut, are packed in wooden cases. There are two types of tobacco grown in Florida, one from seed originally imported from the Island of Cuba, the other from the Island of Sumatra. The Cuban seed has retained the characteristic size and appearance after being planted for seven consecutive crops; but the Sumatra seed, after two or three seasons, begins to assume the character of the Cuban plant. For this reason it is customary,

in order to preserve the desired Sumatra characteristics, to save enough seed from the first or second crop to last for eight or ten years, and to plant each succeeding crop during this period from this seed. The Florida-grown Cuban filler closely resembles the imported Cuban leaf in size, shape and general appearance. It has good body and aroma, although the specific aromatic quality and flavor of the best Cuban tobacco have not yet been obtained. The tobacco is carefully fermented, very much as in the Cuban process, and is afterwards carefully sorted and graded according to color, body and length. It is then made into carrots and baled in identically the same way as the Cuban package. The Florida-grown Sumatra is essentially a wrapper leaf that has been highly developed during the past few years. While the first crops gave in most cases only about twenty per cent. of wrappers, the proportion has now been increased to seventy and eighty per cent. under the most careful methods of cultivation. This crop is so valuable that the land is now shaded with lath or cloth, placed on wood frames nine feet high, and irrigation is used in addition by some of the larger planters with most gratifying success. The Florida-grown Sumatra closely resembles the imported leaf in size, shape, texture, grain and general appearance. It is extremely thin and very elastic. The most desirable sizes are fourteen, sixteen and eighteen inches. The best crops will average about 200 leaves to the pound. Two pounds will cover 1,000 cigars. This makes it a cheap wrapper for the manufacturer, even at the high price of $1.50 and $2.00 per pound. Choice selections have sold by the bale as high as $3.00 and $4.00 per pound, although the proportion of these very high grades is yet very small, requiring infinite care and great expense in sorting. This tobacco is all primed, that is, each leaf is picked when ripe and great care is exercised in fermenting, grading and assorting.

A Field of Tobacco in Vuelta Abajo, Cuba

HAVANA TOBACCO.—Havana tobacco, which means all tobacco grown on the Island of Cuba, possesses peculiar qualities which make it the finest tobacco in the world for cigar purposes. The island produces from 350,000 to 500,000 bales annually, of which 150,000 to 250,000 bales comes to the United States for use in American cigar factories. The best quality of the Cuban tobacco comes largely from the Vuelta Abajo section, although some very choice tobaccos are raised also in the Partidos section. Remedios tobaccos are more heavily bodied than the others and are used almost exclusively for blending with our domestic tobaccos. While there are innumerable sub-classifications, such as Semi-Vueltas, Remates, Tumbadero, etc., the three general divisions named above, Vuelta Abajo, Partidos and Remedios, embrace the entire island. If a fourth general classification were to be added, it would be Semi-Vueltas. The Vuelta Abajo is grown in the Province of Pinar del Rio, located at the Western end of the island. It is raised practically throughout the entire province. Semi-Vueltas are also grown in Pinar del Rio, but the trade draws a line between them and the genuine Vueltas. Partidos tobacco, which is grown principally in the Province of Havana, differs from the Vuelta Abajo in that it is of a much lighter quality. The Partidos country is famous for its production of fine light glossy wrappers. Tobacco from the foregoing sections is used principally in the manufacture of clear Havana cigars. Some of the heavier Vueltas, however, are also used for Seed and Havana cigar purposes. Remedios, otherwise known as Vuelta-Arriba, is grown in the Province of Santa Clara, located in the centre of the island. This tobacco is taken almost entirely by the United States and Europe and is used here for filler purposes, principally in Seed and Havana cigars. Its general characteristics are a high flavor and rather heavy body, which make it especially suitable for blending with our domestic tobaccos. Havana tobacco is packed and marketed in bales.

SUMATRA TOBACCO.—Sumatra tobacco is tobacco grown on the Island of Sumatra, a Dutch possession

in the East Indies. The island produces 250,000 to 270,000 bales of tobacco per year, of which about 30,000 bales, all wrapper tobacco, is imported into the United States. This tobacco is not imported directly from Sumatra but is purchased at inscriptions two series of which, one in the Spring and one in the Fall, are held in Amsterdam and Rotterdam. By virtue of the soil and climate of the island, Sumatra tobacco is naturally of a wrappery nature, a characteristic that has been more highly developed by scientific cultivation, and it is used for wrapper purposes exclusively in this country. It is considered a neutral tobacco as to flavor, and therefore has a sort of affinity for almost every kind of cigar filler leaf. Its principal advantages for cigar wrapper purposes are its appearance, which is glossy and of good color, and its remarkable elasticity or yielding quality. While the wrapper duty is very high, $1.85 a pound, Sumatra can be used economically by manufacturers on account of its stretchy nature, which enables them to wrap more cigars from a given number of leaves than could be done from almost any other kind of wrapper tobacco. Generally speaking, about two pounds furnishes wrappers for one thousand cigars. Sumatra is classified generally by the districts in which it grows, which are chiefly as follows: Deli-Langkat, Serdang, Padang and Asahan. The various brands and marks by which the tobacco is described are derived from these districts, in combination with the name of the company which packs the tobacco and the degree of color and quality, viz., Deli Maatschappij/EL1. The terms are of Dutch and Javanese origin. The tobacco industry in Sumatra is practically controlled by a number of Dutch corporations, chiefly among which are the following: Deli Maatschappij, Deli Batavia Maatschappij, Senembah Maatschappij, Medan Tabak Maatschappij, Nieuwe Asahan Tabak Maatschappij, Rotterdam Deli Maatschappij, Amsterdam Langkat Maatschappij, Amsterdam Deli Co., and Tabak Maatschappij Arendsburg. At the series of inscriptions held semi-annually in Amsterdam, the Sumatra tobaccos are parceled off to the highest bidders. Sumatra

tobacco is packed in bales weighing from 150 to 180 pounds.

Porto Rican Tobacco.—Porto Rican tobacco is raised in certain limited areas in the interior of that island. It is capable of producing and has produced as much as 120,000 bales per annum. It consists mostly of filler leaf, but the proportion of wrapper tobacco is being increased by the gradual adoption of the modern methods of cultivation.

The districts around Caguas and Cayey are known particularly as good tobacco raising sections, the Cayey district being especially suitable for good filler grades. The Western part of the Island of Porto Rico is not generally suitable for tobacco growing.

Except for a comparatively small amount used for home consumption, this tobacco is all exported to this country, either in the form of leaf tobacco or in the form of manufactured cigars. Porto Rican tobacco has many of the characteristics of Havana leaf. The leaf tobacco imported from Porto Rico to this country amounts to about 30,000 bales annually.

Mexican Tobacco.—Mexican tobacco does not enter into the American industry largely enough to justify more than a passing notice. It has no commercial importance except as a substitute for Havana which, however, is not generally resorted to except upon extraordinary occasions, such as during the Spanish-American War when the supply of Havana to this country was absolutely cut off. From the standpoint of the American trade the crop is largely of a filler nature although a limited quantity of fairly wrappery tobaccos is produced.

Philippine Tobacco.—Philippine tobacco is grown on some of the islands of the Philippine Archipelago. The area adapted to the production of tobacco in the islands is limited by climatic conditions, the soil and the topography of the country. As in all countries, it is impossible to raise tobacco of even fair quality within ten miles of the sea coast, so that all of the small islands of the archipelago cannot be taken into consideration in a tobacco sense. Of the nine larger islands of the archipelago, there are but two, Luzon

and Mindanao, which have the requisites, soil, etc., for producing tobacco of sufficiently high quality to interest the American trade, and in any material quantity. The interior of Mindanao has not been sufficiently explored to make it a factor in tobacco raising, so that, at the present time, about the only area worth considering is about 65,000 acres in the interior of Luzon. The yearly production from this section is about 50,000,000 pounds, including all grades. The best tobacco is grown in Isabela Province.

TOBACCOS FOR CIGARETTES, SMOKING MIXTURES, CHEWING, ETC.

CLASSIFICATION.

Domestic.—Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Maryland, Louisiana and Eastern Ohio.

Imported.—Turkish (including some Greek) and Latakia.

Description of Domestic.

Among the States furnishing tobacco for cigarette, smoking, chewing and snuff purposes, Maryland produces about 20,000,000 pounds; Virginia, 80,000,000; North Carolina, 85,000,000; South Carolina, 10,000,000; Tennesee, 31,000,000; West Virginia, 3,000,000 and Kentucky, 225,000,000 pounds. Louisiana, where Perique tobacco comes from, produces about 30,000 pounds. The above tobaccos have classifications, such as fine cut Burley, fine cut Mason County, White Burley, Red Burley, Virginia sun-cured, Virginia flue-cured, North Carolina red fillers, Missouri air-cured fillers, Green River, Virginia yellow and mahogany, wrappers, fillers, lugs, etc.

The light tobaccos produced in Maryland are air cured, while a similar type, grown in Eastern Ohio, is largely cured by wood fires. These types are used exclusively for pipe smoking and cigarettes. The following grades are made by the packers: Fine yellow, medium bright, good ordinary "colory," fine red, fine seconds, medium seconds and lugs. Some of these

goods are used by domestic manufacturers, but most of them are exported.

The White Burley is entirely air cured, except in exceedingly damp weather, when wood fires may be used. This tobacco is assorted by the farmer into the following grades: Flyers, the first two bottom leaves, which are overripe and very trashy; common lugs, the next two leaves; good lugs; bright leaves; long red; short red and top leaves. This tobacco is packed in hogsheads by the farmer and inspected in the same manner as the Maryland tobacco, but, unlike the latter, it is sold at auction in the warehouse.

Not more than ten per cent of the White Burley is exported, but on account of its great absorbent powers it is highly prized in this country for twist and plug chewing tobaccos. The flyers are used for pipe smoking, the heavy bodied top leaves for plug and twist fillers, while the best leaves are used for cigarette, plug and twist wrappers, and for cutting purposes.

The bright yellow and mahogany tobaccos are cured entirely by flues, a method which cures very quickly, not more than four days being required in the process. This tobacco, which is sold at auction in loose piles in the warehouse, is largely consumed in this country, being used for plug and twist wrappers, cigarettes, and fine-cut chewing and smoking tobaccos. The broad scope of this type makes it exceedingly popular.

DESCRIPTION OF IMPORTED.

Turkish Tobacco.—Turkish tobacco is grown in Turkey and the old Turkish provinces, such as Montenegro, Bulgaria, Macedonia and Syria. Some so-called Turkish tobacco is raised in Greece, but this is of an inferior quality and is not generally imported to this country.

Latakia is grown in Asia Minor.

No tobacco is grown in Egypt. Its cultivation is prohibited in that country by law.

Samsoun is in the heart of the great tobacco district of Asia Minor, and that town, Smyrna and Cavalla are the three principal points for the collection and shipment of Turkish leaf. Bafra and Xanthi

A Road Through Vuelta Abajo

tobaccos also come from that section, and it is from these various localities that the most desired strains of Turkish leaf derive their names.

THE EXPORT TOBACCOS.

The most important countries for the American tobacco trade, are Great Britain, Germany, Italy, Canada, Spain, Austria, Switzerland, France, Belgium, Holland, Africa, Mexico, Central America, South America, and the West Indies. Each country differs in its requirements and also in the character of the leaf used. As all of these countries are supplied from the same section, and as the differences in the tobaccos to a casual observer are slight, it requires considerable experience on the part of the packer to assort the various tobaccos into the grades suitable for each country and to put the goods in the condition required by the particular country for which they are intended.

QUALITIES REQUIRED.

In the matter of quality Great Britain requires the best leaf and pays the highest price; Austria comes next; while Italy, France, and Spain follow in the order named. Great Britain demands a large leaf, olive green in color and so heavily smoked in curing that the odor of hard wood is apparent in the leaf. The green tint is secured by harvesting the leaf before it is fully ripe. A tobacco that gives promise of being suitable for the English market is harvested at an earlier stage of ripeness than for any other country. On account of the high import duty on tobacco imported into England, it is usually stemmed before leaving this country and packed very dry.

Austria takes two grades of leaf—the Austrian A, a large leaf, medium to light brown in color, of medium body, and about 26 inches long; and Austrian B, a leaf of about the some quality, 22 inches long.

Italy takes four grades of tobacco. The Italian A is practically the same as the Austrian A, except that preference is given to a dark-brown color, and is used for the same purpose, that of cigar wrap-

per. Italian B is the same as Italian A, only shorter; Italian C1 is a dark, short, heavy-bodied leaf, used for cutting purposes; while Italian C2 is a trashy lug.

France requires three grades. The French A is a leaf 20 inches long, which, in Virginia, is made black by steaming and hard pressure in the hogsheads while hot; French B is the same grade as French A, 18 inches long, while French C is a smooth lug, 16 inches in length, used principally for snuff. Formerly the French Government took the best heavy-bodied tobacco of Virginia, but since the Regie contract system has been introduced the quality of the leaf used has gradually lowered.

Spain uses very little of the Virginia tobacco, requiring a leafy lug, which can be obtained to a better advantage in Kentucky and Tennessee. That country uses four grades, differing in length, cleanness, and soundness of the leaf.

Africa takes a long, narrow leaf of heavy body, which is made very black by steaming and packing under heavy pressure in the hogshead while the tobacco is still warm. Oil is applied by means of a sponge to each layer as it is packed. This same grade of tobacco is also used in the Canary Islands and West Indies, and is packed in a similar manner, except that the oil is omitted.

All dark export tobaccos are cured with open hard-wood fires, the English trade demanding extra heavy smoking in curing. There is a slight difference between the export tobacco of Virginia and that of Kentucky and Tennessee. The Virginia tobacco, generally speaking, is of better quality than the Kentucky and Tennessee grades, and more of it is used for the domestic market. On account of the high import duties of some of the foreign countries and the low prices paid by the Regie Governments, the better qualities of these tobaccos are used in this country for manufacturing purposes.

CHAPTER IV

THE TOBACCO GROWING INDUSTRY IN THE UNITED STATES

Slightly Different Treatments in Different Sections—Production Readily Increased to Suit the Demand—Classification by Leaf Trade

In the cultivation of tobacco the same general principles are followed all over the world. The only differences in the manner of treatment are those made necessary in the effort to get the most satisfactory results in the different tobacco growing sections, according to their natural adaptability to the different branches of tobacco manufacture.

The highest state of perfection and most scientific methods of tobacco culture are found in those sections, such as Sumatra, Connecticut, Florida and parts of Cuba, where the production of large fine leaves for cigar wrapper purposes is the desired attainment.

Probably no more illuminating treatise on this subject has ever been written than that contributed to the Bureau of Plant Industry, by W. W. Garner, physiologist in charge of tobacco and plant-nutrition investigations. This chapter, therefore, may be regarded as consisting largely of his monograph on the subject.

The tobacco plant may be grown successfully in all latitudes from southern Canada to the Tropics and on a great variety of soils, but the commercial value of the product is influenced to a greater degree by the particular soil and climatic conditions under which the plant is grown than is almost any other important crop. These facts are so well recognized that the tobacco industry has become highly specialized, and the trade regularly looks to certain well-defined areas of production for its supply of the various classes and types of leaf required. In these tobacco-producing districts the necessary facilities for marketing are available, and prevailing prices of the cured leaf are gov-

erned largely by the relative supply and demand and by the quality of the leaf produced.

Each important district produces a tobacco of certain well-known characteristics which make it desirable for special purposes of manufacture or export. Moreover, in practically all of these districts the production can be readily increased to meet any increased demand at profitable prices. For these reasons efforts to introduce the commercial growing of tobacco in sections outside of the established producing centers are likely to result in failure, either because the leaf produced is not quite right in type or satisfactory marketing facilities are not available. Furthermore, any development of the industry in a new section on a large scale, which would be essential for economical marketing, would most likely lead to overproduction and, as a consequence, unprofitable prices. As a matter of fact, overproduction is a constant menace in all of the established centers of tobacco growing.

The methods of growing and handling the crop must be varied according to the type of leaf which it is desired to produce, for the kind of tobacco obtained is influenced very greatly by the methods of growing and handling which are employed. The methods for the production of the various types briefly outlined in the present bulletin, though possibly susceptible of improvement in some of the details, are the best that can be recommended in view of the present knowledge and experience of investigators and the more successful growers.

CLASSES AND TYPES OF TOBACCO.

As is well known, tobacco is manufactured into various forms for consumption, but large quantities also are exported in an unmanufactured state, so that we may distinguish three general classes of tobacco, i. e., (1) cigar tobaccos, (2) export tobacco, and (3) manufacturing tobaccos. By manufacturing tobaccos are meant all types used in manufactures other than cigars. The manufacturing and export classes, however, have much in common as regards cultural methods, and some types are used both for manufacturing and

for export; therefore these two classes will be considered together as distinguished from the cigar tobaccos.

Each of these three classes of tobacco may be subdivided into types, depending on their special uses, methods of growing and curing, or on the variety of seed used. In the case of cigar tobaccos there are three principal types, corresponding to the three parts of the cigar—wrapper leaf, binder leaf, and filler leaf. In the manufacturing and export tobaccos are such types as the flue-cured, Virginia sun-cured, White Burley, dark fire-cured, etc. These various types are produced on certain special types of soil and according to definite methods of growing, curing and handling the crop. In some cases the variety of seed used is also an important factor. The special uses of the principal types embraced in the three fundamental classes of tobacco are brought out in connection with the cultural directions for the more important types.

CHAPTER V

THE CULTIVATION OF DOMESTIC CIGAR LEAF TOBACCO

The Two Principal Groups Are Broadleaf and Havana Seed—What They Are, and How Cultivated, Harvested and Packed

While cultural methods in their application to the different cigar-tobacco types and districts may be modified to advantage in some of the details, the essential features are more or less similar, so that it will suffice to outline the most approved methods for the Connecticut Valley, and only the more important differences in cultural methods to be followed in the remaining districts need be mentioned.

There are three important varieties or groups of varieties used in growing cigar tobaccos in this country, i. e., the Broadleaf, or Seedleaf, group; the Havana Seed group, and the Cuban group. The typical Broadleaf, or Seedleaf, is the Connecticut Broadleaf, extensively grown in the Connecticut Valley for wrappers. Acclimated strains of this variety have been developed and are grown in all the northern cigar-leaf States for the production of binder and filler leaf, and in each case these strains are given the name of the State in which they are grown. Thus, we have the Pennsylvania Broadleaf, or Seedleaf; the Ohio Broadleaf, or Seedleaf, etc.

The Connecticut Havana, or Havana Seed, also is extensively grown in the Connecticut Valley for wrapper and binder leaf purposes, and in other northern cigar-tobacco districts for binder leaf, and to some extent for filler leaf. The name "Havana Seed" usually is applied to this variety as grown in any of the northern cigar-tobacco districts.

There is an important group of so-called Spanish varieties, extensively grown for binder and filler leaf purposes, which are very closely related to or identical with the Havana Seed. The two most important members of this group are Zimmer Spanish, principally grown for filler in the Miami Valley of Ohio, and the Comstock Spanish, chiefly grown for binder leaf in Wisconsin. Zimmer Spanish as grown in Ohio is markedly different in quality from Connecticut Havana as grown in New England, but when the two are grown side by side it is practically impossible to distinguish the one from the other.

Another variety of some local importance in the Miami Valley of Ohio is known as "Little Dutch," of which there are several strains. This variety, which relatively is narrow leaved, is thought to have been introduced from Germany.

The Cuban group is composed of strains directly obtained from imported seed. This group does not figure prominently in trade terminology, it being commonly included under the term Havana Seed. The Cuban variety is one of much importance in the southern cigar-tobacco districts, where it is grown both for wrappers and forfillers, although the Sumatra variety is also extensively grown for wrapper leaf. In Connecticut and Florida a considerable acreage of Cuban tobacco for the production of wrapper leaf is grown under an artificial shade.

CIGAR WRAPPER AND BINDER TYPES.

The Connecticut Valley and the area centering around Gadsden County, Fla., and Decatur County, Ga., are the principal wrapper-leaf sections, while Wisconsin is typically a binder-producing State. The Big Flats district of New York and Pennsylvania also produces mainly a binder leaf. The typical wrapper-leaf soils of the Connecticut Valley and Florida are fine sands and sandy loams containing only a very small percentage of clay and having a very limited capacity for holding water. The subsoils are variable in composition, but as a rule con-

Setting Out Plants By Machine In Connecticut

tain at most only moderate amounts of clay. The binder-leaf soils of Wisconsin are sandy loams, light clay loams, and the prairie soils, which are a dark, rich loam.

Connecticut Havana Seed.

The young plant is developed from the seed in a cold frame or hotbed until it has reached a convenient size for transplanting. A convenient width for the seed bed is six feet, and it should be of sufficient length to give the required area, 180 square feet being sufficient to produce plants for one acre. In the districts farthest north hotbeds may be used in order to secure quick growth; otherwise, the better practice is to use a cold frame with a southerly exposure. The best seed-bed soil is a loose loam of high fertility and thoroughly drained. In the fall forty pounds of lime and 200 pounds of stable manure to 100 square feet of bed area are plowed under. In the spring, about two weeks before sowing the seed, additional fertilizers should be applied, consisting of twenty pounds of cottonseed meal or castor pomace, one pound of acid phosphate, and one-half pound of carbonate or sulphate of potash per 100 square feet of bed area. These materials are thoroughly spaded into the soil to a depth of four or five inches, and the bed surface is brought to a fine tilth. If the facilities are available, the soil should be sterilized with steam to reduce to the minimum fungous diseases and the growth of weed seeds.

The best time for sowing the beds is from the middle of March to the middle of April. It is seldom safe to set the plants in the field before the middle of May or the first of June, on account of the danger of late frosts and cold nights. In cold frames from six to eight weeks are required to produce plants of suitable size for transplanting to the field, and in hotbeds four to six weeks are required. If cloth instead of glass is used to cover the seed beds, eight to ten weeks are necessary to develop the plants to the proper size for transplanting.

The rate of sowing seed is important, for if the

seeds are sown too thickly the plants will be delicate and spindling, while very thin seeding will produce short, thick-set plants, poorly suited for transplanting. The better practice is to sow at the rate of an even teaspoonful of dry seed to 100 square feet of bed area. In order to secure an even distribution of the seed it is thoroughly mixed into two quarts of land plaster, finely sifted wood ashes, or bone meal. Three sowings should be made in order to insure an even distribution over the bed, light color of the filler material serving to indicate the evenness of the distribution. The seed must be covered very lightly, and it will be sufficient to go over the bed with a roller or to pack the soil with a plank. After sowing, the beds are covered with glass or with cheesecloth.

The seed beds require careful attention, more especially those covered with glass. The beds should be maintained in a moist but not wet condition, and never should be allowed to dry. Sufficient ventilation must be given, and the temperature within the beds must not be allowed to become too high, as the plants are very liable to "burn." With glass-covered beds a cheesecloth or light canvas laid over the glass will be found an efficient aid in preventing burning, and during the night the cloth will also check radiation and tend to maintain a warmer temperature within the bed.

When the plants have developed from four to six leaves and are five to six inches in height, they are ready for transplanting. During the week prior to transplanting, the plants should be "hardened" by removing the cover from the beds during the greater part of the day, increasing the period each day until finally, if the weather is at all favorable, the covers should be left off entirely.

Before pulling the plants from the beds the soil should be thoroughly wetted to avoid the unnecessary breaking of the roots. The plants should be pulled from the bed separately and put into baskets or small boxes, in which they are carried to the field. They should be kept cool and in a moist condition,

especially at the roots. No plant that has wilted should be transplanted.

Preparing and Fertilizing the Land.

A rapid and uninterrupted growth is necessary to secure the finest textured leaf, and clean and thorough cultivation are essential. Care is required in the preparation of the soil, and it should be brought to a fine tilth. Special attention must be given to the matter of fertilizing the crop, and the use of fertilizers containing chlorin is to be avoided, as this element tends to injure the burning qualities of the leaf.

In the preparation of the field ten to twenty tons of stable manure are plowed under, preferably in the fall. In the spring the land is again plowed and harrowed. The fertilizers are then broadcasted, this being done with a machine adapted to the purpose.

When manure has been used an application of fertilizer should be made, consisting of one ton per acre of a high-grade mixture, analyzing about five per cent nitrogen, five per cent phosphoric acid, and six per cent potash, using cottonseed meal, castor pomace, or fish as the source of nitrogen, precipitated bone or a superphosphate to furnish the phosphoric acid, and high-grade sulphate or carbonate of potash, wood ashes, or vegetable potash to supply the potash. When no manure is applied the proportion of nitrogen should be increased so that the analysis of the mixture is about six per cent nitrogen, five per cent phosphoric acid, and six per cent potash. The chief value of the manure, however, is in its beneficial effect upon the physical character of the soil, thereby producing a better textured leaf. Tobacco stems secured from cigar and tobacco factories may also be used, mainly as a substitute for stable manure. Though they are to be regarded as a source of humus, the stems contain larger quantities of plant food than manure and therefore should be applied in smaller quantities. Two tons per acre of "seed" stems (stems from cigar factories) or two and one-half tons of "Kentucky"

stems (secured from the tobacco factories) are considered to give good results.

Lime also should be added to the soil. On land which has not received lime for several years an application of 1,500 to 2,000 pounds per acre of high-grade burned lime, or the equivalent of ground limestone, is desirable. After the first application, annual applications of 500 to 800 pounds per acre should be made. The lime is broadcasted separately and just before the other fertilizers are put on. The value of the lime is not limited to its effect upon soil conditions and plant growth, as it tends to improve the burning qualities of the finished leaf.

Immediately before transplanting, the field should again be harrowed until all clods are broken. A smoothing harrow and plank should then be drawn over the field, after which the rows are marked off. If a transplanting machine is used, the marking off of the rows is unnecessary, as a marker on the machine can be used to gauge the position of each succeeding row.

TRANSPLANTING AND CULTIVATING.

The plants should be set in rows three feet three inches to three feet six inches apart. In the rows the plants may be set from fourteen to twenty inches apart, the best distance for average conditions being about seventeen inches. The setting of the small plant requires care in order that the roots may be given an opportunity for rapid development, so that the plants may grow off promptly. Where a transplanting machine is used the distance of setting, the application of water, and the firm establishment of the plant are automatically regulated; but when the crop is small, say an acre or less, a machine can not profitably be employed.

In hand setting, the method is as follows: After the rows have been marked on the field, the points at which the plants are to be set may be marked out by running along the row a light buggy wheel, with projections set on its rim at the proper intervals, or by the use of other simple devices. A hole

four to six inches in depth is then made with a dibble to receive the plant. Unless the soil is already thoroughly wet, the holes are filled with water. The soil quickly puddles after the water has been applied, and the plant should be set immediately. The roots should be placed in the puddled mass and before all of the water has been absorbed by the soil. The surrounding soil is then drawn about the roots and stalk of the plant and firmly pressed, so that the plant is maintained in an erect position, allowing the bud to remain just above the surface.

If possible, transplanting should be done on a cloudy or rainy day or in the afternoon, so as to avoid excessive wilting. It requires several days for the plants to recover from the shock due to transplanting, but as soon as practicable all plants which have died should be replaced by healthy ones freshly drawn from the seed bed. The field should be gone over at least three times within the first two weeks, for it is important to obtain as nearly a perfect stand as possible. Damage from cutworms must be guarded against, and if they are present constant resetting during the first three weeks may be necessary.

After the field has been set about a week, cultivation should begin and should be maintained as long as the size of the plants permits. Ordinary surface cultivation to maintain a loose, fine mulch about the plant, with frequent hoeing to keep down weeds, is essential. Cultivation should be shallow, especially in the later stages of growth, to avoid injury to the roots of the plant.

When about one-half of the plants in the field have developed seed heads, but before these have bloomed, "topping" should be done. This consists of breaking off the top or crown of the plant at about the third sucker or branch below the seed head, so as to allow the plant to develop more fully the lower leaves. After topping, suckers or lateral branches will soon develop in the axils of the leaves, and these should be removed by hand before they become large enough to retard the development of

Tobacco Growing Under Shade in Connecticut

the leaves. In topping and suckering, the field must be gone over two or three times, the aim being to cause all of the plants in the field to mature at about the same time, and hence those plants developing a seed head later than the average should be topped lower.

Harvesting.

Either of two methods of harvesting Havana Seed tobacco may be used. The one most commonly practiced is to cut the whole plant when the middle leaves are "ripe," i. e., when the leaves have assumed a lighter shade of green and have thickened so that upon folding a section of the leaf it creases or cracks on the line of folding. In harvesting the plants, the stalk is cut near the ground with a light hatchet, knife, saw, or a special form of long-handled shears, and the plant is carefully laid upon the ground, where it is allowed to remain until the leaves have wilted sufficiently to avoid much breaking in handling. It is then hung upon a lath four feet long by piercing the stalk near its base with a removable metal "spearhead" placed on the end of the lath and sliding the stalk on the lath. As a rule, six plants should be hung on a lath and distributed evenly. Instead of spearing the stalk it may be hung upon the lath by means of a hook or a nail driven through the lath at a sufficient angle to hold the plant securely. Six hooks or nails are put at equal distances on the lath, the three on one side alternating with those on the opposite side.

The laths carrying the plants should be placed upon a rack and hauled to the curing barn, where they are hung in tiers with a space of six to twelve inches between the laths.

In the second method of harvesting Havana Seed, the leaves are picked from the plant as they ripen. The degree of ripeness is not so advanced as that described for stalk-cut tobacco. The proper degree of ripeness is very important, for upon this largely depends the development of the desirable qualities of texture, body, color, elasticity, etc., during the process of curing. A safe guide is to take the first

picking at the time the seed head forms, and subsequent pickings at intervals of six days. Five pickings should be made, the first one comprising the lower four leaves of commercial size and, proceeding upward on the plant, the second and third pickings each including three leaves, and the fourth and fifth pickings three or four leaves each. As the leaves are taken from the plant they should be laid in the row and then carried by an attendant in baskets to the curing barn. Here, by means of a large needle, a string is passed through the stem of the leaf near its base, one end of the string being attached to the end of the four-foot lath, and when the string is full the free end is attached to the other end of the lath. Each lath should carry thirty-six to forty leaves, and the leaves should be put on in pairs, so that they are back to back and face to face. The laths should be spaced five inches apart in the curing barn.

Connecticut Broadleaf.

The methods of preparing the seed bed and the land are the same for Broadleaf as for Havana Seed. In setting Connecticut Broadleaf in the field, the distance between plants should be greater than in the case of the Havana Seed, on account of the larger size of the leaf of the former. The best distance of setting the plants in the row is twenty to twenty-four inches, and the rows should be from three feet three inches to four feet apart, but otherwise the cultural methods to be followed are about the same as for Havana Seed. The same fertilizers are to be used as for Havana Seed, but the quantity applied should be increased by about twenty per cent. The Broadleaf should be harvested by cutting the stalk in the manner described for Havana Seed. However, the first four leaves can be picked and cured separately, and when thus harvested should be taken off about one week prior to cutting the stalk.

Comstock Spanish.

The Comstock Spanish variety, along with the ordinary Havana Seed, is specially adapted to the

production of binder leaf in Wisconsin. The seed bed should generally be sown during the latter half of April. Barnyard manure is used with good success in fertilizing the tobacco soils, but thus far commercial fertilizers have been used more sparingly than in the Connecticut Valley. Transplanting from the seed bed to the field under normal conditions should be done during the month of June, more commonly during the latter half of the month. The rows should be thirty-four to thirty-eight inches apart and the plants should be set eighteen to twenty inches apart in the row. The tobacco should be topped somewhat lower than in Connecticut. Harvesting, which is done by cutting the stalk in the manner described for Havana Seed, should begin about three weeks after topping.

Cuban.

Acclimated strains of Cuban seed are grown under artificial shade in the Florida-Georgia district and in the Connecticut Valley for the production of a high-priced cigar-wrapper leaf. This phase of the industry, however, is very intensive and highly specialized, requiring the greatest skill and expert knowledge, and is largely carried on by corporations or individuals having ample capital. Cuban tobacco is also grown under ordinary conditions for cigar-wrapper purposes in the southern districts, but it is preeminently a filler variety and will be discussed more fully as such.

CIGAR-FILLER LEAF.

Our domestic cigar-filler leaf is produced mainly in the Lancaster (Pa.), the Miami Valley (Ohio), and the Onondaga (N. Y.) districts, and in restricted areas of Florida, Georgia and Texas. The best filler-leaf soils, mostly loams, are decidedly stronger than those adapted to wrapper leaf, containing more clay and retaining larger percentages of water. In the main, these soils are well adapted to general farming, and the tobacco is, or should be, grown in rotation with other crops. Cultural methods differ prin-

cipally from those followed in the wrapper districts, in that the plants are spaced farther apart in the field and are topped lower so as to obtain a heavier leaf, and the tobacco is allowed to become riper before it is harvested. In general, less intensive methods are followed than in the wrapper districts, since filler leaf commands only moderate prices.

Pennsylvania Broadleaf.

The typical filler soils of the Lancaster district are the Hagerstown and the Conestoga loams, which are of limestone origin. The method of preparation and the care of the seed bed are essentially the same as in the wrapper districts. The seed usually should be sown during the first half of April, and transplanting, which is generally done with a horse transplanter, should take place through the month of June. The soil needs to be put into good condition by plowing and harrowing. Stable manure should be used liberally, usually at the rate of ten loads or more per acre. Commercial fertilizers thus far have not been used so extensively as in Connecticut. The rows should be three to three and one-half feet apart, and the plants should be set twenty-four to thirty inches apart in the row. The better practice is to top the plants before the flower head begins to bloom, and a smaller number of leaves should be left than in the case of wrapper types. The suckers must be promptly removed as they develop. The tobacco must be allowed to become full ripe, as judged by the signs indicated for the wrapper type, and should be harvested by cutting the stalk at its base and spearing it on laths, as described for Connecticut Havana Seed.

Zimmer Spanish.

The Zimmer Spanish variety is grown principally in the Miami Valley of Ohio. The principal soil types have been designated as "Miami clay loam," and "Miami black clay loam." The Zimmer Spanish, so called, seems to be practically identical with Havana Seed, as has already been stated. The seed

beds are best sown during the latter part of March and through April. Transplanting should be done during the first three weeks of June. Commercial fertilizers should be used freely, and good results are obtained in applying as much as 1,000 pounds per acre of a mixture analyzing about four per cent nitrogen, nine per cent phosphoric acid, and eight per cent potash—that is, one supplying about forty pounds of nitrogen, ninety pounds of phosphoric acid, and eighty pounds of potash. Barnyard manure also gives good results. The rows should be placed thirty-four to thirty-eight inches apart and the plants set twenty-eight to thirty-two inches apart in the row. The plants should be topped before blooming and should be kept free of suckers. The time and method of harvesting are about the same as for Pennsylvania Broadleaf.

Cuban.

The Cuban variety is grown mainly for filler leaf in the southern cigar-tobacco districts. The best results are obtained on soils somewhat heavier than the types best adapted to wrapper leaf. The seed bed is burned to destroy weed seeds, as is described for the export and manufacturing types. The seed may be sown in January or February. Fertilizers are to be applied to the bed, as has been described for the cigar-wrapper type, except that potash may be omitted from the fertilizer mixture. The beds must be sprayed with Paris green or with arsenate of lead to control insects. The seedlings are ready for transplanting when they are four to five inches high. The tobacco land should be plowed in the fall and must be liberally fertilized. When fifteen or twenty loads of manure per acre are applied, a mixture of 600 to 800 pounds of cottonseed meal, 400 pounds of acid phosphate, and 200 pounds of sulphate of potash usually gives good results. The rows are made three to three and one-half feet apart and the plants are set fourteen inches apart in the row. The plants should be topped to twelve to sixteen leaves and the suckers are removed as often as they appear. The tobacco should be har-

vested just before it becomes fully ripe. For filler leaf the proper method of harvesting is by cutting the stalk, but when there is promise of obtaining a considerable percentage of wrapper leaf the harvesting is done by picking the leaves as they ripen, in the manner described for Connecticut Havana Seed. The details of harvesting by cutting the stalk are essentially the same as for the northern wrapper varieties.

CHAPTER VI

CULTIVATION OF EXPORT AND MANUFACTURING TOBACCOS

Methods Applied to Burley and Other Strains Used for Plug, Smoking and Foreign Trade—Flue-Cured Tobaccos—The Famous Perique of Louisiana

White Burley is a distinctive variety, producing a type of cured leaf known by the same name, practically all of which is used in domestic manufacture. This variety, of which there are several subvarieties, such as the Stand-Up and Twist Bud, is grown mainly in north-central Kentucky, southern Ohio, southwestern West Virginia, and southeastern Indiana. Aside from its peculiar chlorotic appearance, Burley more closely resembles the cigar-seedleaf group than the other export and manufacturing varieties (except the Maryland).

The Maryland is another fairly distinctive variety, in many respects resembling the cigar-seedleaf and White Burley varieties. The type of leaf produced is known as Maryland tobacco. The subvarieties of the Maryland are known as Broadleaf and Narrowleaf, respectively.

In the production of the remaining types of export and manufacturing tobaccos, such as the flue cured and fire cured, a very large number of so-called varieties are used more or less interchangeably. Nearly all of these may be regarded as coming under two principal groups, namely, Oronoco and Pryor, although in many cases the distinctions between the strains or subvarieties are so slight as to make it impossible to determine in which of the two groups each really belongs. Of the Oronoco group may be mentioned the Big Oronoco, Little or Narrow-Leaf Oronoco, White-Stem Oronoco, Lizard Tail, Gooch and Flanagan. Among the

group of Pryors there are the Blue Pryor, Yellow Pryor, White or Medley Pryor, and Silky Pryor. Two additional varieties or subvarieties of the export and manufacturing tobaccos of importance are the Yellow Mammoth and One Sucker.

FIRE-CURED EXPORT TOBACCO.

The fire-cured export type of tobacco is grown almost exclusively in western Kentucky and Tennessee and in central Virginia. Its principal characteristics are its dark color, heavy body, and a distinctive flavor imparted to it from the smoke of the open fires used in curing. By far the greater portion of this type is exported. The soils producing the fire-cured export leaf are heavy, containing a high percentage of clay or silt, and hence would not be adapted to the culture of most other types of tobacco. The principal varieties used in producing the fire-cured tobacco are the Pryors, the Yellow Mammoth and the Oronocos.

The Seed Bed.

A well-drained, friable soil having a southern or eastern exposure is to be preferred for the seed bed, and when practicable a suitable spot in the woods is chosen. Selecting a time, after removing the forest growth, when the soil is not too wet, it is burned to destroy weed seeds and insects. A good method is to lay small poles or skids over the area to be burned, at intervals of three feet, and to pile brush and wood on one end of the skids. After setting fire to the brush the burning material is pulled forward on the skids as rapidly as the soil becomes sufficiently heated and sterilized to a depth of two or three inches. After removing all debris, the soil is thoroughly spaded or plowed to a depth of a few inches. Before seeding, a fertilizer consisting of about five pounds of cottonseed meal or two or three pounds of nitrate of soda and one pound of acid phosphate for each 100 square feet of bed is to be worked into the soil. In sowing, the seed should be mixed with a large volume of

fertilizer, corn meal, or sifter ashes (about two quarts for each teaspoonful of seed), in order to secure an even distribution of the seed. A heaping teaspoonful of seed is sufficient to sow twenty-five square yards of seed bed and should furnish enough plants to set an acre in the field. The seed beds may be sown in January, February or March. The seed must be covered only very lightly, and it is better simply to press the soil down firmly by trampling or with a board or roller. The bed should be surrounded with logs or boards set on edge to a

Havana Tobacco Drying in the Shed

height of six to ten inches to form a cold frame, over which are stretched wires to support the cheesecloth which is to be placed over the frame before the plants come up. The precautions regarding watering and hardening the plants prior to transplanting, as described for the cigar types, are to be carefully followed.

Transplanting and Cultivating.

Prior to transplanting, the land should be thoroughly fitted by plowing and harrowing, after

which the rows are laid off, the preferred distance between rows being three and one-half feet. In Kentucky and Tennessee the plants are usually set in checks; that is, they are set three and one-half feet apart each way, while in Vriginia they are generally spaced two and one-half to three feet apart in the row. The accurate spacing of the plants may be readily attained by using a simple marking device, which is drawn across the field so as to indicate the points at which the plants are to be set. Throwing up slight ridges for the rows will remove the danger of the young plants being drowned in case of heavy rains. Transplanting is done mostly by hand and in much the same way as has been described for the cigar tobaccos. Fertilizers should be applied in the process of preparing the land for transplanting. But little barnyard manure is available in the fire-cured districts, and commercial fertilizers are generally used rather sparingly, the usual application being 200 to 400 pounds per acre of a mixture containing about three per cent nitrogen, eight per cent phosphoric acid, and three per cent potash. Much larger quantities of fertilizer will give better results in most cases. A clover sod plowed under in the fall gives good results with this type of tobacco.

Cultivation should begin as soon as the plants start to grow and should continue as long as the size of the plants will permit. The first cutlivation is deep, after which frequent shallow cultivations are most desirable. Where the plants are set in checks they may be cultivated both ways, so as to reduce the amount of hand hoeing required to keep down weeds.

Topping and Suckering.

When ten to fifteen leaves have appeared on the plant the top should be broken out, so as to force all of the growth into the leaves left on the plant and cause them to grow larger, thicker, and darker. A favorite practice is to pick off and discard three or four of the bottom leaves, and then top the plants so as to leave eight to twelve leaves on each plant.

High topping tends to delay maturity and to produce a thinner leaf. The aim in topping is to leave only as many leaves on the plant as it can bring to the fullest development and as far as possible to insure that all plants will mature at about the same time. The suckers which develop in the axils of the leaves must be removed as rapidly as they appear.

Harvesting.

The plants generally are ready for harvesting in from thirty to forty days after topping. At this stage the leaves will have taken on a lighter color and become thick and heavy, and small yellow flecks will have appeared, especially near the edges of the leaf. It is not desirable to harvest the tobacco for two or three days after a heavy rain, as the gum which accumulates on the leaf in dry weather and improves its quality is washed off by the rain. In harvesting, the stalk should first be split with a knife from the top down to within a few inches of the bottom, in such a way as not to cut or injure the leaves. The stalk is then cut off near the ground and laid on the ground to wilt sufficiently to permit handling without breaking the leaves. The plants should then be placed astride sticks and hauled to the curing barn. In Virginia the plants are usually placed on the sticks before being laid on the ground to wilt. The sticks are four feet four inches long, and five to eight plants, depending on their size, should be placed on each stick. The sticks carrying the plants should be arranged on the tier poles of the curing barn at intervals of six to eight inches.

WHITE BURLEY TOBACCO.

White Burley tobacco reaches its highest state of development on the limestone soils in the famous bluegrass section of Kentucky and in southern Ohio. This variety is light in color and body and possesses an exceptionally large absorptive capacity for the liquid flavoring materials used in the manufacture of plug tobacco.

The methods of preparing, sowing and caring for the seed beds are about the same as described for the fire-cured export tobacco. Burley tobacco gives the best results when grown on virgin soil or on a bluegrass sod which has been standing for at least six or eight years. Under these conditions two or three excellent crops of tobacco can be obtained, after which the results are unsatisfactory until the land has again stood in bluegrass for several years. In preparing the land, a bluegrass sod should be turned under in the fall and thoroughly cultivated with a disk harrow in the spring. On a heavy bluegrass sod, manure or fertilizers are seldom required for the tobacco.

Burley tobacco plants should be set eighteen to twenty-four inches apart in the row, with the rows three and one-half feet apart. Transplanting by machine has proved very satisfactory. Cultivation should be shallow, frequent and thorough. The tobacco must be topped comparatively high, from fourteen to eighteen leaves being left on the plant. Careful attention must be given to the removal of the suckers. The crop should be harvested in the same manner as the fire-cured export tobacco, except that when cut it is preferred that the plants be immediately placed astride the stick, one end of which is forced into the ground at an angle in such a position that the stick bearing the plants rests on the stubble of a severed plant. The tobacco is to be left in this position till wilted and then carried to the curing barn. The sticks bearing the plants should be placed eight to ten inches apart on the tier poles.

FLUE-CURED TOBACCO.

The flue-cured type of tobacco, frequently spoken of as yellow tobacco, is grown extensively in the eastern counties of South Carolina, in the northern and eastern counties of North Carolina, and in southern Virginia. It is used largely in the manufacture of cigarettes, smoking and plug tobacco, and for export. The bright color of the leaf is due mainly to the character of the soil upon which it is grown

and to the method of curing. The typical soils are light sands and sandy loams with yellow or red subsoils containing a small proportion of clay. The varieties most used in growing flue-cured tobacco are strains or subvarieties of the Oronoco and the Pryor groups, such as Little Oronoco, Big Oronoco, Warne, Gooch, Adcock, Yellow Pryor, and Flanagan.

The methods of preparing and caring for the seed beds and fitting the land are essentially the same as for the fire-cured export tobacco. The rows should be laid off three and one-half or four feet apart and the plants set twenty-four to thirty-six inches apart in the row. Transplanting should begin about the first of April in South Carolina and extend into May or even June in the western portions of the North Carolina district. The bright-yellow color of this type is one of its most valued characteristics, and for this reason large quantities of nitrogenous fertilizers must be avoided. The soils producing the best quality of leaf are naturally infertile, and commercial fertilizers are freely used with profit, but the proportion of nitrogen in the fertilizers must be kept comparatively low. For an acre of the average flue-cured tobacco soil it is recommended that a mixture be used consisting of two hundred and fifty pounds of dried blood containing sixteen per cent of ammonia (thirteen per cent nitrogen), five hundred pounds of acid phosphate containing sixteen per cent phosphoric acid, and one hundred and twenty pounds of sulphate of potash containing fifty per cent of potash. Cottonseed meal also gives good results as a source of ammonia. For a more fertile soil the quantity of fertilizer above recommended should be reduced somewhat, especially as regards ammonia. The methods of cultivation, topping, and suckering are about the same as for fire-cured tobacco.

Flue-cured tobacco should be thoroughly ripe when harvested. The leaf surface should show numerous patches of a light-yellow color, and even the green portions should be of a light tint; otherwise, it

will be difficult or impossible to cure the leaf properly. In the eastern portion of the flue-cured districts the preferred method of harvesting is to pick off the leaves as they ripen, beginning at the bottom of the plant and taking two or three leaves at each picking. The leaves should be taken to the barn and attached in small bunches to the sticks by means of strings. The string is attached to an end of the stick and near this end is passed once around the stems of three to five leaves, thus forming a small bunch which will hang to one side of the stick. The string is then drawn diagonally to the opposite side of the stick and similarly looped around a second bunch of leaves and the process repeated until the stick is full, when the free end of the string is attached to the other end of the stick. In the western portion of the flue-cured district the preferred method is to harvest the tobacco by splitting the stalk, cutting it off at the base, and placing it astride the stick, as in the case of fire-cured and Burley tobacco. The field must be gone over from two to four times in order to get all of the plants at the right stage of ripeness.

DARK-MANUFACTURING TOBACCOS.

In the portion of Kentucky and Tennessee lying between the Burley district and the dark fire-cured sections, types of tobacco are produced in large quantities suitable for domestic manufacture into chewing and smoking tobacco. These types are mostly air-cured, like Burley, but in other respects the methods of production are quite similar to those followed for the dark fire-cured tobacco. In the southern portion of this territory, centering around Warren County, Ky., the so-called One Sucker is the principal variety grown.

In a few counties of Virginia in the vicinity of Richmond, a type of leaf long known as Virginia Sun-cured is produced. Formerly the tobacco was exposed to the sun in the process of curing (hence the name), but at the present time air curing as practiced in the Burley district is the more common method. This type is specially adapted to the manu-

facture of chewing tobacco. Aside from the curing and somewhat higher topping, substantially the same methods of production should be followed as have been outlined for the fire-cured export tobacco.

MARYLAND TOBACCO.

The Maryland type is produced extensively in the section lying between the Potomac River and Chesapeake Bay known as southern Maryland. This tobacco is light in body and color, of a dry or chaffy character, and has good burning qualities. It is an export type, and goes mostly to France, the Netherlands, and Germany.

The tobacco soils of Maryland are sandy or silty in character, the soil and subsoil being gray or yellow in color, and are usually deficient in humus. When available, stable manure gives good results. Low-grade fertilizers are quite generally used, but only in small quantities. The tobacco may be conveniently set in squares, the plants being thirty-two to thirty-six inches apart each way. Cultural methods are about the same as for other types. The plants are topped at sixteen to twenty or more leaves, depending on the vigor of the plants and the seasonal conditions. The tobacco matures in two to four weeks after topping, and should be harvested by cutting the stalk and spearing on a stick, as described for the cigar-leaf types.

THE PERIQUE METHOD.

The curing of Perique tobacco is the most distinctive of all various types, and its cultivation and preparation for market is perhaps the most interesting. This industry is in the hands of the descendants of the Arcadians, who have lent much romance to the State of Louisiana. It is grown in St. James Parish, in that State, and takes its name from Pierre Chenet, who introduced its cultivation to his fellow refugees over a century ago. Here the making of seed beds begins in October, and they are reworked in December. The seed is put in about the first of January and the beds are covered with

palmetto leaves to protect them from the February frosts. In February the soil is plowed and the planting takes place early in March. The tobacco is harvested in June and July, and the midribs are removed immediately after the leaves are taken from the stalk. These half leaves are converted into loose twists, about twenty leaves to the twist, and a dozen of the twists are put into a box where they are subjected to high pressure. The tobacco is allowed to remain under this pressure until the next day, when it is taken out and left in the air for a brief period until the juices which it has exuded become reabsorbed. This process is repeated many times, the juice being repeatedly pressed out and reabsorded until the tobacco changes from a dark brown to a shiny black. When the cure is complete the tobacco is formed into rolls, which are called carrottes, weighing about four pounds each. The process of putting up these carrottes, as described by Killebrew & Myrick, is also interesting. "A cotton cloth twenty-four by eighteen inches is laid upon a table and covered with wrapper leaves, the under surface being turned uppermost. The fibres of the leaves are so arranged as to point to the middle, longitudinal line of the cloth. A layer of filler leaves, one-half inch in thickness, is placed on the wrapper leaves, extending to within one inch of the edge of the cloth. Over this layer of leaves a second cloth is placed and the tobacco is tramped. The layer of tobacco then is doubled over at each end about three inches and tramped again. The entire mass—cloth, wrappers and fillers—is then rolled into a sylinder fifteen inches long and three inches in diameter, a hole being kept through the center, making a tube into which the ends of the wrapper leaves are tucked. The ends of the cloth are then tied with strings and a rope one-third of an inch in diameter is wound tightly into a coil around the roll from end to end, by use of a windlass made for the purpose, The rope is removed from the role at the end of twenty-four hours and then rewound more tightly. The carrotte is then ready for the market. Perique tobacco often remains under pressure for twelve months, and

Harvesting—Spearing the Stalks On Lath To Be Hung In the Barn

it is said to grow sweeter and better with time. The carrottes form a species of currency with the local merchants, and they are always taken in exchange for goods received in payment of debts." This interesting strain of leaf is used not only in the United States, but throughout the world for giving strength and character to pipe tobaccos.

CHAPTER VII

THE CULTIVATION OF TOBACCO UNDER ARTIFICIAL SHADE

The Leaf is Grown Under a Tent of Cheesecloth or a Covering of Lath—Leaves of Fine Texture—Curing Important

The shade-growing method is one of the institutions of modern tobacco cultivation and its purpose is to produce tobacco suitable for cigar wrappers. The principal is this: The sun, shining on the tobacco plants, draws the nutrition from the earth, and the plant ripens quickly, the leaves having a tendency to be heavy-bodied and not very large. To defeat these results and produce large, thin, silky leaves for cigar wrapper purposes, the grower sometimes covers his field with a tent of cheesecloth or with a lattice work of lathing which protects the growing tobacco from the direct rays of the sun. Thus the ripening process is slower, causing the leaves to grow larger and thinner and less gummy; and being thinner and less gummy, they are of a lighter color when finally cured. This method is employed by some growers in cigar leaf districts, such as Cuba, Florida and Connecticut.

Harvesting the Crop.

The time to harvest shade tobacco is when the leaves are fully developed. There is a slight change in color as the tobacco reaches maturity, but it is not safe to allow the leaves to remain on the stalk until this change of color is noticeable to the inexperienced observer, for then they are likely to be too ripe. The best method to follow, and the one which will err in the right direction, is to make the first priming about ten days after topping and the second about ten days

later. The third priming may be taken off about a week after the second, and the fourth, or top-leaf priming, can follow as soon after the third as time will permit. The tobacco of this top priming is not very valuable and should it not be harvested for two or three weeks after the third priming there will not be any great loss unless there is a freeze.

By priming is meant picking the leaves from the stalk in the field. The first priming consists of taking off three or four of the bottom leaves; the second, from four to six leaves; the third, all but two leaves on top of the plant, and the fourth, the remaining leaves.

The leaves, when taken off, are laid in piles along the row. A primer picks the leaves from two rows and puts his primed leaves on the row to his right. Another man priming the two rows to the right of the first primer puts his primed leaves on the row to his left. In this way, two adjoining rows contain all of the primed leaves from four rows of tobacco. A man takes a basket and going between these two rows picks up the primed leaves and carries them to a wagon with a special rack on which they are drawn to the shed or curing barn. Great care should be taken not to jam or press down the leaves in the basket so as to bruise them.

In the barn are laths with string attached on which the leaves are sewn with a needle. This string is fastened to the laths by means of a saw-cut about one-half inch deep in each end. The string is run through the cut, wound once about the lath, and returned through the cut. This holds the string firm. From thirty-two to forty leaves, according to their size, are put on each string, face to face and back to back, and the string is fastened to the other end of the lath. These leaves when hung as described are called a "lath" of tobacco, and these laths are now hung on tier poles in the barn to cure.

Curing.

The curing is an important process, for much can be done to add to the quality of the tobacco at this

time and if the weather is damp and rainy much needs to be done to prevent the tobacco from being ruined. Tobacco requires from twenty to thirty days to cure and during this period it needs constant care.

If the barns are properly built the curing is done with a certain degree of accuracy. A model barn for this purpose should not be larger than 100 by forty feet and twenty feet to the eaves. The walls of the barn should be made of ship lap siding, so that they can be tightly closed. A horizontal ventilator, six inches wide, should be placed every thirty inches on the sides of the barn and hung on hinges so that it can be easily opened and shut. By this arrangement, when the ventilators are open there is a circulation of air through the barn between the layers of tobacco.

When the barn is filled with fresh tobacco it should be closed tight, and if the weather is cool or damp, small charcoal fires should be built in the barn to warm up the tobacco and wilt it down. When the tobacco has wilted and started to yellow, the doors and ventilators should be opened to allow the circulation of air to carry off the moisture. If the curing season is a normal one the doors and ventilators should be opened every morning and closed at night, but if the season is dry the reverse of this action is required, especially when the process of curing the tobacco is nearly completed. If the season is a very damp and rainy one small charcoal fires, placed close together, should be lighted in the barn to dry out the tobacco and prevent it from pole sweating.

After the tobacco is cured the barn should be left closed until there comes a damp, foggy time or a rain, when all of the doors and ventilators should be opened, to allow the tobacco to come "in case," so that it can be taken down. The tobacco is in proper case for taking down when it does not rattle when handled and when at the same time if a number of leaves are squeezed tightly in the hand they will spring partly open again upon releasing the pressure.

Taking Down the Laths.

When the tobacco is in case it is in proper condition for taking down. The floor of the barn should be cleared and some old blankets laid down. On these the tobacco is piled without removal from the laths, several laths being taken at a time and the first layer laid so that the laths will be next to the cloth and the tobacco sticking up. The next layer is piled so that the tobacco is next to the tobacco of the other layer and the laths are on top. This process is repeated until the pile is several layers high. When the pile is complete it should be covered well with either blankets or cornstalks, and it can be left with safety for several days before it is stripped if the weather is not too warm. If the weather is warm, there is danger of the tobacco heating and spoiling if left more than four or five days in the pile.

Stripping and Bundling the Leaves.

The two processes of stripping and bundling go together. A lath of tobacco is taken up and the leaves shoved together at the middle of the string. The string is now severed close to each end of the lath, wound around the leaves at the butt ends, and drawn through the "hand" of leaves so as to fasten it. These "hands" of tobacco, as they are called, are packed in a false box lined with paper, butts out, and the tips of the leaves overlapping in the centre. About thirty pounds are packed in each box in this way and then pressed down. Paper is wrapped about the tobacco and tied with strings which were placed at intervals along the box before the paper was put into it. One side of the box is swung on hinges, so that it can be let down to allow the removal of the tobacco. The tobacco thus packed is called a "bundle" and is ready for market or for the packing house. When tobacco is to be packed by the grower it is not necessary to bundle it, but it may be packed at once into boxes and taken to the warehouse.

The tobacco when packed in bundles may be kept for several weeks or months without much injury if

the bundles are piled one layer high and put in a cool, moist place. The sooner the tobacco is put into the ferment after it is taken down, however, the better.

Packing.

The term "packing" in handling tobacco means the preparing of the raw product for the use of the manufacturers.

The first step in the packing of shade tobacco is to ferment it. This is done by taking the tobacco from the bundle, shaking it out thoroughly, and laying it down in layers in a large pile, called a "bulk," being careful to keep the leaves straight. To build a bulk of tobacco requires some skill and experience. If the bulk is not made properly it is liable to settle sidewise and fall over.

The bulk is built on a platform made of one-inch boards and raised about four inches from the floor, so as to admit a free circulation of air. This platform is made for convenience, twelve feet long by five and one-half feet wide. In starting to build a bulk a row of hands of tobacco is first laid around the outside edge of the platform, being careful to keep the butts of the hands close together and the leaves straight. This is called the outside tier. The next tier of this layer is laid so as to shingle over the first, lapping well over the tips of the leaves of the first tier. This is repeated until the bottom of the platform is covered. Then another layer is laid on top of this one, and so on until the bulk is from four to six feet high.

When about half of the tobacco intended for the bulk has been laid down, a tube four feet long should be placed so that one end comes to the outside and the other extends to the center of the bulk. This is for the purpose of placing a thermometer in the bulk to keep a record of its temperature.

The temperature of the bulk is an index of how the tobacco is fermenting. The nature of the tobacco, its condition, the temperature of the room in which it is bulked, and the time of the year all have their influ-

ence on the degree of rapidity with which the tobacco will heat.

If the tobacco is in high case and is bulked early in the fall in a warm room, it will heat up very rapidly, and the bulk will have to be taken down, the hands of tobacco well shaken out, and the bulk rebuilt, the tobacco which has been on the outside being put on the inside and that which has been on the inside of the bulk on the outside. On the other hand, if the tobacco is in low case, is not bulked until late in the winter, and is put down in a moderately cool room the tobacco may lay in the bulk for ten days before it begins to heat.

It is evident from these facts that the only guide in fermenting tobacco is the thermometer. The record of the thermometer, coupled with experience, can do much to improve shade tobacco during the fermenting process.

From long-continued experience in fermenting many different kinds of tobacco, the writer has come to the conclusion that the best results can be obtained by placing the tobacco in bulks of about 5,000 pounds, and when the thermometer registers 114 degrees F. tearing down the bulk, shaking out the tobacco, and rebulking. After the bulk has been rebuilt, the temperature should be allowed to come up again to 112 degrees F., or higher if it will, and after this the tobacco is ready for grading.

The fermentation room should be kept during the process of fermentation as nearly as possible at a temperature of eighty degrees F., with about seventy-five per cent relative humidity. The temperature should be as uniform as possible, because any great change will cause the moisture in the room to settle on the butts of the tobacco and produce mold, which is likely to damage the tobacco. The room should be well ventilated by an air shaft running from near the floor of the room to above the roof of the building.

Grading.

As shade-grown tobacco has to be graded principally according to color, a well-lighted room is

required, and to avoid deep shadows and a varying light the windows should be on the north side of the room. A low ceiling is desirable so as to keep the moisture as low in the room as possible. The room should be kept so moist that the tobacco will not dry up while it is being handled.

When the tobacco is first taken from the bulk, the hands are untied and the leaves shaken out. It is then "sized" so that all of the leaves of the same length come together. This is done by a person taking the leaves and putting them into a box fixed up with partitions so that there is a space for all leaves from twelve to fourteen inches long, fourteen to sixteen inches long, and so on.

After the tobacco has been sorted according to size it is taken to tables, where the leaves are opened and graded, all sound leaves of even color and good texture being classed as wrappers and the rest seconds or binders. The wrappers are further divided into light, medium, dark and off or mixed, according to their color. The seconds are simply divided according to color into light and dark.

After the tobacco has been graded it is tied with raffia into hands of one-fourth pound each. These hands are now packed into bales of about 150 pounds. The common size for a bale of shade tobacco is thirty-one by thirty-one inches and ten inches thick. The tobacco is baled by packing the hands into a false box. A piece of matting is placed on the bottom of the box and another on the top of the tobacco when the box is filled. The top is now forced down by means of a press and held there until the edges of the two pieces of matting are sewn together, when the bale is made. The bale is now given a number, the weight and grade are marked on it, and it is stored away until sold. Before it can be shipped it must be covered with burlap and crated.

Marketing.

Tobacco is sold by means of samples, four hands being considered a sample of shade tobacco. A manufacturer or jobber when wishing to purchase shade-

grown tobacco looks over a number of samples and picks out those which suit his trade. If the price is satisfactory, a sale is made and the tobacco is shipped.

CHAPTER VIII

CULTIVATION OF FOREIGN CIGAR LEAF USED IN AMERICA

Method Followed on the Island of Sumatra, where Coolies Perform the Labor—How the Famous Havana Leaf is Grown

Prior to 1862 a very good quality of tobacco was produced in the eastern portion of the Island of Java, in the same group of islands with Sumatra. This had been exceedingly profitable for the planters, but about this time the crops began to bring lower prices and planters were forced to look to other localities in which a better grade of tobacco could be produced. An Arabian trader called the attention of some of his merchant friends in Batavia, the capital of Java, to Deli on the east coast of the Island of Sumatra where he claimed there was a splendid opportunity to raise a particularly fine grade of tobacco. Little was known of Deli at this time, especially of the interior. After a persistent effort the Arabian succeeded in interesting a Java planter, Mr. Nienhuys, and in March, 1863, the latter accompanied the Arab to Deli to see what could be done in the matter. Mr. Nienhuys was received very cordially by the native sultan and succeeded in getting a firm foothold in Deli and securing several valuable franchises from the sultan. The following year Mr. Nienhuys was provided with sufficient funds by a mercantile firm of Rotterdam, and raised a crop of 50 bales of tobacco of about 176 English pounds to the bale. In 1865 he raised 189 bales. The first crop raised by Mr. Nienhuys in 1864 of 50 bales sold for 48 cents Dutch money, equivelent to about 20 cents American money, per 1.1 English pounds. The next crop (1865) of 189 bales sold for 149 cents Dutch money, or 60 cents American money, per 1.1 pounds. The 1868

crop of 890 bales sold at about ninety and one-half cents American money.

The superior quality of this tobacco attracted the attention of experts to such an extent that in 1869 a number of capitalists of Amsterdam, headed by Mr. Cremer, concluded to undertake the raising of tobacco on a large scale. They organized the "Deli Maatschappij" ("maatschappij" means company) with an original capital of 300,000 guilders (about $120,000). Many companies and several private planters followed this lead, but the Deli Maatschappij has always been the most important organization of the east coast of Sumatra. At present there are 36 incorporated companies, with a total of 97 estates or plantations, and 38 private planters in the tobacco district of the east coast of Sumatra.

PLANTING AND CULTIVATING.

As a rule, each coolie makes and keeps his own plant bed in the front part of the field near the road. Occasionally a fine piece of land is picked out where all the beds are made together, but in this case every coolie has his own bed. The usual size of the beds for each coolie is about three by eighteen feet, or fifty-four square feet, upon which is put rather less than half of a cartridge-shell measure of seed. As it is difficult to give a definite measure of the seed required on account of the change in its vitality and the change in seasons, a number of trial beds are usually sown, so that the manager can know what is the best measure of seed to sow. It is important that the beds be not too thickly sown. The bed is about one foot high with a ditch all around it. The seed is kept by the manager in quart bottles, and this seed bottle is never given to the Chinaman. Each coolie gets a paper package with enough seed for one bed at a time. He mixes the seed well with dry wood ashes, about two or three quarts of ashes for each bed. After the bed has been thoroughly prepared, cleared of all roots and carefully raked over and well watered, the mixture of ashes and seed is carefully spread over the surface. Every six days a new seed

bed is made, in order to be sure to always have fresh plants of proper size on hand when the time comes for transplanting. A bed of this size will produce about 2,000 good plants as a rule. As a coolie plants about 10,000 plants on an average in his field, it would be expected that he would make about five of these seed beds, but as a rule every coolie makes from fourteen to sixteen, and sometimes as many as twenty seed beds.

When new land is used it is not necessary to burn the beds first, as little trouble will ensue from grass and weeds; but if old land is used it is necessary to burn the land over, as is done in the United States.

Before sowing the seed bed is covered with a sort of roof. On one side of the bed sticks are put in about three and one-half to four feet high, and on the opposite side sticks of from three to three and one-half feet, thus giving a gentle slope to the roof, which is made of straw or prairie grass. This can be put close together or spread out as desired, in order to regulate the amount of heat received by the small plants. In this way the seeds and tender plants are protected from the intense heat of the East India sun. Beds are always made from the east to west lengthwise. After eight or ten days the roof can be spread out considerably in the morning and evening, and after a month or five weeks it can be taken off and kept to serve for another bed. The plants are usually ready to be transplanted in from forty-five to fifty days after the seeds are sown.

SETTING THE PLANTS.

Transplanting begins about the last of March and is continued until the beginning of June. Experience has shown that after that date the results are not so satisfactory.

The field is first thoroughly broken up to a depth of a foot with the tjankol. The coolie then carefully clears the piece which he intends to plant of all stumps, grass, etc., and rakes the ground carefully, so that it has a smooth and even appearance.

This is done the day before the transplanting. The coolie is then provided with a plant string of the same length as the width of the field, namely, about sixty feet. Each end of the string is securely attached to a stick three feet long for the purpose of laying off the rows. The string itself is divided into spaces of two feet by securely tying red or blue ribbon or cord at these intervals. These show where the plants are to go in the row. The collie then provides himself with a plant stick about five feet long and sharpened at each end. The middle of the stick is flattened somewhat that it may be held more securely. After stretching the plant string across the field the holes are made with the stick about four inches deep and three inches wide. In this way about 250 or 300 holes are prepared in rows three feet apart, the holes in each row being two feet apart. The holes are watered immediately before the plants are put in.

About four o'clock in the afternoon, when the rays of the sun are not very strong, the coolie takes the basket and drops a plant near every hole. When all are dropped he commences to plant. He holds the plant in the middle of the hole with his left hand and with his right hand presses the dirt around the roots carefully but firmly, so that he can give the plant a slight pull without removing it.

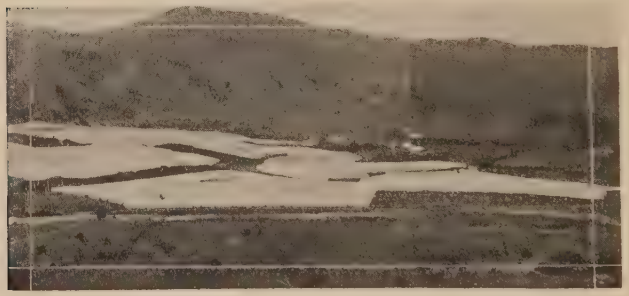
SHADING THE YOUNG PLANTS.

If there is time, the same evening, or otherwise early the next morning, the coolie commences to put in the shade planks. These are in the shape of a shingle, are made of very thin light wood about seven or eight inches long and about five inches high. They cost from $8 to $9 per 10,000. Each coolie supplies himself with about 3,500 of these planks, which are added to his account, but if he desires to do so he can return them after use and get credit for what he returns.

STIRRING THE SOIL AND WATERING.

The cultivation of the crop is never done as in this country by plows or cultivators, but is all done by hand with the tjankol. The field is usually cultivated three times during the season. The first time the plants are about nine inches high. The coolie places himself between two rows of plants and makes a little gutter in the middle, about the width of his tjankol, which is about eight inches wide. He takes dirt and loose earth up with this instrument and puts it against the plant, evenly divided on each side.

The heavy rains commence to fall sooner on the



A Shade Plantation in Porto Rico

uplands—that is, those in the south part of the tobacco district—than in the lowlands, therefore the transplanting and cultivation begins sooner on the higher estates than on the others.

The second cultivation takes place when the plant is about twelve or fifteen inches high. The little gutter in the middle of the row is made deeper and the soil which comes from it is again put against the plants, as in the first cultivation. Before doing so, however, the coolie takes off the leaves on the bottom of the plant to the height of about three inches and puts them around the stem and packs the soil on these. He is exceedingly careful in breaking these leaves to see that the broken end is covered up immediately, so as not to expose the

injured parts to the sun. At this second cultivation the plants are carefully examined and all suckers are removed. These are broken off and buried around the stem of the plant in the same way as the leaves, so as to protect the stem.

The third and last cultivation takes place when the plants are about two feet high. The rows by this time stand in rather high ridges, so that they are well protected from the heavy rains.

TOPPING AND RIPENING.

When the plant has been about forty or fifty days in the field the flower buds begin to come out and are pinched off, just as in the United States. The appearance and vitality of the plant determines how much shall be pinched off in the topping. It is usual to leave from fifteen to eighteen leaves, but in some extraodinary cases as many as twenty-four leaves are left on. After the plants are topped suckers come out in great quantities and the coolie has to keep them broken off. This is usually done in the morning.

If the topping has been done at the proper time the tobacco is usually ripe and fit to be cut about three weeks later. No definite and positive rule can be given which will indicate the ripening of the plant, and, in fact, there are various opinions upon this matter. The tobacco when ripe has a yellowish appearance, the leaves, especially the inside ones, have little light brown lumps and take on a somewhat swollen appearance, while the edges commence to curl up towards the underside and assume a dark brown color. The time from transplanting to harvesting in Deli is from seventy to ninety days.

CUTTING AND HOUSING.

Recently the system of priming has been adopted. In this method, instead of cutting the whole stalk, the leaves are taken off from the stalk and carried to the drying shed in baskets. Some growers prime off half the leaves in this way and then cut the balance of the stalk. Tobacco is never cut or primed

when wet with rain or dew, as this causes the leaves to sunburn and little holes to form, which lowers the value of the leaf. The cut tobacco is very carefully kept from the ground and the pekoelan is covered while being hauled from the field to the drying shed.

HANGING AND CURING.

The tobacco which has been accepted as satisfactory is hung for one day on the lower supports and is then removed to the top of the shed and the shed is filled from the top down. Green tobacco must never be hung under tobacco which is already half cured. The smaller plants are put up in the top of the shed, so far as possible, and the larger ones under them. A shed of the dimensions given will contain from 45,000 to 50,000 plants. A watchman sleeps in every shed and takes care of the opening and closing of the doors and windows for ventilation under instructions from the European assistant.

Light colors are much in demand at the present time, and for that reason in clear and warm weather all the doors and windows of the shed are kept open in order to get all the light and air possible. As a rule the doors and windows are not opened until after 8.30 or 9 o'clock in the morning, as there is much dew and moisture in the air during the night and early morning. At first they are only opened a little, as the green tobacco must not yellow too quickly. With strong, heavy winds everything is kept tightly closed. This is a matter of experience, and no rules can be given for the ventilation of the barn.

As a rule, the tobacco is cured in from four to five weeks and is ready to be stripped and bundled.

Occasionally during continuous wet weather it is necessary to use fire in the shed. It is, of course, better not to do this.

The tobacco is stripped on a little platform about 12 feet square in the drying shed. The bottom and top leaves of the stalk are kept separate. These are again divided into ragged and those which have

holes in them and those which are black and heavily speckled. These four kinds are put together in separate bundles of about fifty leaves each. They are tied with the same string with which the tobacco was hung up in the first place. This stripping is done early in the morning.

FERMENTING.

The tobacco comes direct from the drying sheds to the one fermenting shed, which holds all the tobacco of the estate. It does not leave here until packed and ready for shipment to the European markets.

The tobacco is put into piles of three kinds, the "quality" or top leaves, bottom leaves, and ragged tobacco. The piles are built up on matting. One row is spread on the matting, the bundles being placed close together with the heads in the same direction. At the corners the leaves are spread out like a fan. In this way layer after layer is put on until the pile is from 4 to 6 feet high. When a large or rather a high pile is to be made, hollow bamboo rods are inserted in the middle of the pile, in which a thermometer is placed at the end of a stick. The outer end of the bamboo has a plug of cotton, so that the temperature of the outside can not interfere with that of the inside. With smaller piles, and especially with trash and inferior tobaccos, simply a bamboo stick is inserted in the pile without a thermometer. The manager, on touching the stick when it is withdrawn, judges how warm the pile is inside. In still smaller piles the hand is simply put in between the bundles. When the temperature rises to about 100 degrees F. the pile is taken down, the tobacco is given a chance to cool off slightly, and a new pile is put up in another place. Care is taken that bundles from the interior are placed on the outside, to give those which were formerly on the outside an equal chance of fermenting. The temperature gradually goes higher until it finally attains the temperature of about 130 degrees F., when the fermentation is stopped. This

maximum temperature must not be attained too quickly, as the quality of the leaf would suffer. No statement can be made as to how often the piles should be turned over, or when this should be done, as it depends upon the condition of the tobacco, especially as to how moist it was when put into the pile.

SORTING.

The ragged leaves are usually assorted first of all when the coolie first comes in from the field, as there is little else for him to do at that time. The sorters sit on matting near the windows on both sides of the fermenting shed. They have in front of them wooden pins stuck on the ground in the shape of a half circle. These are for the different kinds of tobacco. The tobacco is usually divided, with infinite care and judgment, into the following kinds: Brown, dark gray, light gray, yellow, multicolored, coarse not speckled, slightly speckled, dark and brown slightly speckled, gray and light speckled all colors, little-broken dark and brown, little-broken gray and light, much-broken all colors, sweepings, and trash. Some of the estates have other divisions, and some of the kinds here mentioned are again subdivided, but these are about the most important.

BALING.

After the bundles are assorted into lengths the tobacco is pressed into bales of eighty kilograms, equal to 160 American pounds and to 176 English pounds. The trade-mark chosen for the estate is then put upon the outside of the matting which covers the bale, and marked to indicate the grade and length of tobacco.

CULTIVATION IN CUBA.

As the young plants spring up and begin to grow, they are thinned out, watered and cared for until along in October or November, and as soon as the weather becomes settled for the season, the little seedilngs are transplanted into the field. Some growers use shade, but most of the tobacco is grown

in the open. The plants are placed in rows, very much as corn is planted, only farther apart. The plants are carefully protected from weeds and insects, and in December the early tobacco is ready to be harvested. Here the mode of procedure differs according to the discretion of the grower. The plan universally in vogue until recent years was to cut the plant down at the base of the stalk. Lately, however, the more scientific growers harvest their tobacco gradually, picking it leaf by leaf, according as they ripen and mature. The tobacco is then allowed to lie in the field until the leaves are wilted. The stalks (or stems, acccording to the method followed) are then strung on cujes or poles, so that the plants hang with the tips down. The tobacco is then allowed to stand in the sun until it is dry and is then carried into the barns, where the poles are suspended in tiers until the barn is full. Tobacco barns everywhere are constructed with movable, or rather, adjustable, side and end walls which permit of a constant adjustment of the ventilation. While hanging in the barn the tobacco undergoes its preliminary cure and changes in color from the green of the growing plant to a yellowish brown. The climatic changes have to be carefully studied during this process. If the weather is extremely dry it is customary to keep the barns closed in the day time and to open the ventilators at night. It is generally desirable to keep the tobacco fairly dry while it is undergoing the barn cure. After a few weeks, and when the hanging tobacco has reached the proper stage of maturity, a period of damp weather is looked for so that the dry leaves may be rehandled without injury. When the desired shower comes along the tobacco is stripped off the poles and placed in *pilon*—that is, in heaps, or piles, on the floors of the barns, or warehouses, each pile being covered with blankets. Here, being in a compact mass, it undergoes the *calentura,* or fever, by which it is pretty thoroughly cured, the color changing to a deeper brown. After about two weeks in the piles it is sorted, tied into small bundles or carrots, and these in turn are packed in bales. After being baled the

tobacco, if allowed to remain undisturbed, undergoes a third cure, by which it is greatly improved in quality. It is then ready for the factory.

CHAPTER IX

THE CULTIVATION OF FOREIGN CIGARETTE TOBACCOS

How Turkish and Macedonia Leaf is Grown and Marketed —Tobacco and the Regie—Districts from which Derived

The striking increase in the consumption of cigarettes and particularly in the consumption of the better grades of cigarettes in the United States makes the subject of Turkish tobacco culture particularly interesting and important. The cigarette trade, at one time regarded by the cigar dealer as only a necessary evil, has now become an important feature of the up-to-date storekeeper's business, and every cigar dealer, in order to handle his goods intelligently, should have a thorough knowledge of the tobacco which plays such an important part in cigarette manufacture.

The fact that as a result of the Balkan War in 1913, over one-third of the tobacco-producing area passed out of Turkish control did not alter the Turkish tobacco situation so far as the American cigar dealer is concerned. America continues to get its supplies from the same source geographically as before.

It is likely that tobaccos coming from the recently captured territory will always be known as Turkish leaf, and in this discussion they will be referred to as such. It is possible, however, that these tobaccos will in time be known as Macedonian.

It is a curious fact that while tobacco as a plant is a native of the American Continent, America has to go to the Orient for her choicest cigarette leaves. Just at what time the seed was carried from America and the West Indies to the Orient is a detail of which there is no historical record. But it is so long ago that the elapsing period may be counted by centuries. This

much we know, that the Occidental plant found in its adopted country a soil in which it lost many of its original characteristics and gained those qualities that make for excellence in cigarette smoking.

In the early days of its cultivation in Turkey the production was on a small scale, and it was practically exempt from taxation there. Up to the year 1873 it was charged only with some small assessments.

On March 1, 1874, the system of land taxation was adopted and it prevailed up to 1883. The Turkish Government found it necessary to contract a loan and made certain concessions to the Regie, a society which then became a tobacco monopoly, and which acquired as security certain incomes of the Empire. Thus the entire tobacco industry of Turkey came under the control of the Regie.

CLASSIFICATION AND ORIGIN.

The production of tobacco maintains in many parts of the Turkish Empire, but it differs both in quality and quantity in different sections. The most important tobacco producing localities are hereinafter enumerated:

1. The District of Adrianople.

The cultivation in this section is very extensive and the consumption of tobacco is also large, but the quality is not particularly good and exportation is comparatively small. In some parts of Adrianople, however, for example in Baba Eski and Kirkiless, the farmers have taken the seed of Xanthi and have followed the Xanthi methods of cultivation and manipulation. And in such instances the quality has been considerably improved.

2. The District of Xanthi.

This is perhaps the leading section of Turkey in tobacco production. The leaf produced here is very pliable and aromatic and is noted for its sweet taste and fine burning qualities. The leaves are egg shaped and have stems. This latter is mentioned as some strains of Turkish tobacco grow without stems. The

tobacco in this section is better known to the trade under the name of "Basma," and among the Basmas tobaccos the most excellent are called "Dubeks." In the districts of Xanthi there are also the Giumuldzina, Sarisavas, Maronia and others, which while they are not regarded as the true Xanthi resemble it closely. It must be borne in mind that while Xanthi produces perhaps the best tobacco of all Turkey, all tobacco-producing sections of Xanthi do not produce very fine

Harvesting Turkish Tobacco

tobaccos. Probably the finest of the Xanthis is the Yacca. The tobaccos grown on the slopes of the hills are of the fine quality, but there is quite a quantity raised in the level fields which is inferior.

3. The Districts of Kavalla, Drama and Seres.

Some of the tobaccos furnished by these districts are about as good as those of the Xanthi product, particularly the strains raised around the towns of Edirnizkiou, Chataldja, Kirras, Bangeon Mountain, Dar-

nokohoria and part of that grown at Nigritis. The kind of leaf produced in these sections is the egg shaped one known as the "Basmas," which carries with it the name of the section from which the seed originated. Besides these there is a strain of tobacco cultivated here called "Bashi Bagli," which is found particularly in the neighborhood of Prosotzaki and some villages of Pangeon. This tobacco is quite unlike the Basmas. It has large leaves, is coarser and has stems, and the manner of picking and manipulation is entirely different from the Basmas method. Bashi Bagli is really named from the style of handling. Literally the word "Bashi" means head and the word "Bagli" means tie. Bashi Bagli tobacco consists of twenty-five to thirty leaves put together in a small bundle something like carrots of Havana. The term is well known to foreign buyers, and the goods have a large market in many countries. One of the finest types grown in this district is the Mahalla.

4. The District of Salonica.

Salonica is also an important tobacco-producing district. The Bashi Bagli is cultivated here on a much larger scale than the Basmas. Quite a quantity is sent to foreign markets, but many of these tobaccos are used for domestic consumption. In recent years in some sections of Salonica, and particularly in the Chalkidiki peninsular, the Xanthi system of cultivation has been introduced with satisfactory results. The best packings are put up in the neighborhood of Uskup, Mituvitza, Koumanovi and Perlepe. At these latter points the tobaccos are nearly all of the stemmed variety and of light reddish color. The leaves are large, comparatively, and the manipulation is after the system of Bashi Bagli. In many villages the tobacco is really suitable for export, but is not bought by tobacco merchants as the growers cannot manipulate and pack it properly. The Regie, therefore, buys it in large quantities for domestic consumption. Much of this tobacco, too, is sold in contraband, a practice which flourishes in Turkey on a large scale.

5. The Districts of Monastio, Florina, Sari-Ghiol, Etc.

Turkish tobacco that is artificially watered is never as good as that which can be raised with only natural irrigation. In these districts the crops have to be watered and they are of no great value. However, at Siatista, Kozani, Selitza, Seoria and particularly in Southern Macedonia, some enterprising packers have recently improved the methods of cultivation with most promising results. Other farmers have followed suit, but unfortunately the poor reputation which these sections have keeps the large buyers at a distance.

In Asia Minor.

The above-named valuable tobacco producing sections were all wrested from the Turkish Empire during the war waged against the Ottoman by the Balkan Allies. There are still some possessions left in Asia Minor which produce good tobaccos, and Turkey, therefore, is not entirely stripped of her tobacco imports. These are as follows:

1. Districts of Trebizonde and Platanon.

The tobacco produced here has stems and large leaves that are light red in color. It is extensively taken by foreign countries, but most particularly by Egypt.

2. The District of Samsoun.

This is by far the most important tobacco producing centre in Asia Minor. The leaf produced here is regarded as second only to Xanthi and Kavalla. The leaves are lance shaped, delicate in texture and red-yellowish in color. They are quite free from gum and have good taste and fine burning qualities. Here is found the so-called "Maden" style of manipulation, large quantities of which are put into the market as seconds and quite often as firsts. The production is enormous and goes almost exclusively to the foreign markets. The Maden style of manipulation and pack-

ing is quite different from the Basma style, resembling rather the Bashi Bagli.

3. The Bafra and Alatzamion Districts.

These also are important producing sections. Bafra tobacco is particularly famous for its exquisite taste and aromatic quality. Most of it is stemless. It is rather a darkish red in color, and the leaves are tongue-shaped. The style of packing is like that of Samsoun, and the manipulation by tobacco merchants is done very carefully. The tobaccos of Alatzamion resemble the Bafra and have the same trade value.

4. The Districts of Erda, Toskat, Nixar and Zlias.

These sections produce large quantities of tobaccos of the Bashi Bagli style. Artificial irrigation has to be resorted to and the value is not great. The classification of the goods after manipulation only reaches about the fifth quality. However, so great has been the demand for Turkish tobaccos recently that even these goods doubled in price.

5. The Districts of Sinopi, Inepoli, Zoun Goaldak and Part of the Valley of Kastamonis.

Tobaccos of these sections are high in quantity but low in quality and cannot be compared with Bafra and Samsoun, although the climatic conditions prevailing are about the same. If there is any preference the tobaccos of Sinopi are superior to the others and are more largely exported.

6. The District of Ismit.

This belt extends to Afion Kara Hissar, and is among the more important tobacco producing centres in Asia Minor. The goods are largely exported, although they are not of a very high quality. The farmers here are not enterprising, and do practically nothing toward improving the product.

7. The Districts of Palermo, Giounea, Ralikkeser and Kermasti.

The style of packing is similar to the Bashi Bagli, and the leaves are large, yellow and reddish in color and have unreliable burning qualities. The majority of the plantations are "watered." The greatest production centre is around Giounea, where quite large quantities are sold at small prices.

8. The Districts of Smyrna, Including Adramition, Sedgikios and Agiasoulou.

The tobaccos of these sections have a particularly fine taste and are highly sought after by the trade for blending purposes. It has been said that without the mixing in of some Smyrna tobacco a good cigarette cannot be manufactured. The production here is quite extensive.

9. Syria, Where Latakia Comes From.

Recently efforts have been made to introduce the cultivation of tobacco in Syria from the seed of Kavalla and Kanthi. Experiments at Lebanon gave satisfactory results, and all the production of Syria is exported to Egypt.

It is from Syria that the famous Latakia comes. Its place of origin is the Laodicea, mentioned by John in the Apocalypse, Latakia being the modern form of the name. This tobacco is not used extensively by American manufacturers, but it is a great favorite as a blending tobacco for pipe mixtures in Europe, particularly in England and the British colonies. Its peculiar taste and aroma are due to its being cured in the smoke from the fires of camel-dung, which is a common fuel in Arabia.

CULTIVATING, MARKETING AND BLENDING.

Turkish tobacco, owing to the peculiar qualities which characterize it, is a sensitive plant and requires

careful and elaborate manipulation during the process of its development from the seed to the cigarette.

Planting.

Very early in the Spring the seeds are planted in the seed beds and the new shoots require great care up until about the end of April, when replanting operations begin. This work continues according to the weather conditions, but is usually completed about the end of May. The seedlings are planted in straight lines, the plants being set twenty centimeters from each other and the rows about sixty centimeters apart. When the plants begin to bud the soil around them is reworked and every care taken to prevent weeds and to keep the earth in a natural state of moisture.

Harvesting.

The harvesting is governed by atmospherical conditions as well as by the progress of the growth. The lower leaves are always picked first and the upper leaves last. These latter are better and bring higher prices.

As the leaves are plucked they are threaded upon strings and left exposed to the open air under a shelter until they are dry. After having been allowed to hang in this fashion twenty to twenty-five days they are brought into the warehouses where they remain up to the time of the manipulation.

Curing.

This is done by the farmer and consists of taking the leaves from the strings and packing them one upon the other, after which they are covered with a blanket and left in piles, much after the fashion of the American style of bulk sweating. This operation usually begins in November. A little later comes the packing operation which differs in method according to the section in which the tobaccos are produced.

Packing.

Unfortunately the packing operation as performed by the farmers is very unreliable, partially on account

of their ignorance, but more particularly because of a desire to deceive the tobacco buyer when the goods are sold. The farmers as a rule are very wily and resort to methods in packing that are likely to deceive sometimes even the most expert buyer. They insert bad leaves between good ones and in this manner try to increase the price of their goods.

As a result it is one of the most essential things that buyers of Turkish tobacco and manufacturers of cigarettes should have the most expert agents at the packing centres, men having been born and raised in the country being preferable for this work. The whole problem of successful cigarette manufacture depends upon the exact valuation of tobacco at the time of purchase.

HOW IT IS MARKETED.

After the tobacco is put into bales it is offered for sale to the tobacco merchants and they begin to examine the goods. This period is called the "Epoch of the purchases" and is one of the most important and most trying stages of the crop process. When the foreign demand happens to be very strong there is a veritable battle among buyers, as the result of which all the farmers, honest and dishonest alike, fare bountifully.

After the deals are closed the farmers are obliged to transport the tobaccos to the warehouses of the tobacco merchants, that is to the towns, and here is made the second and final manipulation. This is done very carefully, the farmers' packages being taken all to pieces and the tobacco being reexamined, reclassified and rebaled.

At this manipulation the classifications, generally speaking, are as follows: Firsts, seconds, thirds, fourths, first-fifths, second-fifths, sixths, first-sevenths, second-sevenths, also Tzikinti.

These classifications are varied somewhat by different merchants according to their personal ideas and to the requirements of their trade and to the point of shipment.

Upon repacking, the best leaves are put up in small packages and those of inferior quality in larger packages, all being carefully wrapped so as to suffer no damage under transport.

Thus the goods are delivered to the cigarette factories all over the world.

Despite the many hardships of governmental monopoly and the entire lack of official encouragement the production of Turkish tobacco has steadily increased for many years. And such are the peculiar climatic soil conditions of those provinces that all attempts to duplicate Turkish leaf in other countries have ended in failure.

The Art of Blending.

At the same time, as will have been noted by the above, various kinds of Turkish tobacco differ very radically in their characteristics, and it is a peculiarity of the business that no one strain of Turkish tobacco makes the perfect cigarette, but a blend of various types is necessary to get the acme of smoking excellence. Thus the occupation of blending has become a fine art in the trade, and it is regarded as vitally important that the Turkish leaf buyer as well as the factory superintendent must have the particular gift of judging accurately the taste and aroma of all tobaccos.

PART III

MANUFACTURING

CHAPTER X

CLASSIFICATION OF THE VARIOUS MANUFACTURED PRODUCTS

The Technical Meaning and Composition of Cigars—Cigarettes, Smoking and Chewing Tobacco and Snuff, and their Sub-divisions

In the foregoing chapters I have endeavored to give the reader a comprehensive idea of all strains of tobacco leaf grown in, imported to, exported from or consumed within the boundaries of the United States, including a substantial knowledge of the planting, cultivation, harvesting and curing of those tobaccos, and the particular uses to which the tobacco of each locality is best adapted. Having followed the progress of the leaf from the seed to the packing house, we now come to the subject of the manufactures of tobacco, i. e., the cured leaf converted into the various forms in which it is consumed.

The manufactures of tobacco may be generally classified as follows:

Cigars.
Cigarettes.
Smoking and chewing tobacco.
Snuff.

These will be discussed in the order enumerated above.

CIGARS, DEFINED AND CLASSIFIED.

All products of tobacco rolled into the proper form for smoking and made wholly and entirely of tobacco are officially designated cigars, the only differentiation made by the Government (which keeps a close surveillance over the industry because of its

being a taxable commodity) being based upon weight per thousand.

In trade nomemclature, however, the classifications are as follows:

(a) Cigars.
(b) Little cigars.
(c) All tobacco cigarettes.
(d) Stogies and cheroots.

DEFINITIONS OF CIGARS.

Cigars, meaning everything better than stogies and package goods, are again subdivided by the trade as follows:

IMPORTED.

Cigars sold in this country which are made in factories in Cuba. This term is not applied in this country to cigars imported from the Philippines or Porto Rico.

MANILA.

Cigars which are the products of the Philippine Archipelago.

PORTO RICO.

Cigars manufactured on the Island of Porto Rico.

CLEAR HAVANA.

Cigars made in the United States of Cuban tobacco exclusively, made entirely by hand and in exactly the same style and manner of workmanship as that employed in Cuban factories. Cuban workmen are largely employed in such factories. The kind of cigar designated as a "Key West" comes under the clear Havana classification, and a special comment on the use of this term is apropos. Key West, situated on the coral reefs in the south of Florida, and only ninety miles from Havana, was the point at which clear Havana cigars were first manufactured in the United States on a large scale. For many years hardly any cigars of this class were made anywhere else in this country, and thus the term "Key West" cigars came to have a

The Filler Room of a Clear Havana Cigar Factory

distinctive meaning, as signifying cigars made entirely of Cuban tobacco and by Cuban workmen. Gradually, however, Cuban style factories were opened and grew into prominence at other points, particularly Tampa, Fla., Chicago and New York. Although a great many smokers still use the words "Key West" in their old significance as meaning a clear Havana cigar, this is not accepted in trade terminology, and no cigar not made in Key West should be disignated as a Key West cigar.

SEED AND HAVANA.

Domestic cigars made with American (or German) workmanship, with filler partly or wholly of Havana tobacco, and the wrapper of Sumatra or domestic tobacco and a binder of domestic tobacco.

BROADLEAF CIGAR.

Within this classification must be included the "Broadleaf cigar," a term commonly used to designate a Seed and Havana cigar, the wrapper of which is Broadleaf Connecticut tobacco. Also may be included the "Shadegrown," a term sometimes applied to a Seed and Havana cigar having a wrapper of Connecticut or Florida shadegrown tobacco.

ORIGIN OF THE TERM "SEED AND HAVANA."

The term Seed and Havana cigar originated many years ago, before Sumatra was used in this country, and when nearly all domestic cigar leaf tobacco, grown from Cuban Seed, was known as Seed tobacco. Till the latter half of the 19th Century, there were no clear Havana goods made in this country, the best product of home manufacture being the combination of "Seed" and Havana leaf; hence the term "Seed and Havana."

NICKEL GOODS.

This is the term usually applied to the ordinary five-cent cigar which is made either entirely of domestic tobacco, or with a Sumatra wrapper and

a domestic binder and filler; and partially or entirely by machines. In some factories the mold system is employed. Minor exceptions may be taken to this definition.

FIVE-CENT CLEAR HAVANAS.

For instance, some clear Havana factories make, in connection with their larger sizes, a small cigar, which though it may be retailed at five cents, is made purely of Havana tobacco and in the regular Cuban style, in which they use up their small wrapper leaves and small ends of filler stock. There is little or no profit in this class of goods, however, and it is only made by the larger manufacturers either to utilize a waste product or to augment their trade on larger sizes.

RESAGOS.

Another exception is the *resago* or *segundo* (second), which is a cigar with an imperfect Havana wrapper, a domestic binder and a filler of Havana scraps or cuttings. Some manufacturers also make a nickel cigar with all or part Havana scrap filler. These and other variations need not necessarily invalidate the general definition of nickel goods given heretofore.

LITTLE CIGARS AND ALL TOBACCO CIGARETTES.

Goods of the character suggested by these terms; usually sold in small pocket packages, manufactured wholly or partially by machinery, either of domestic or Havana tobacco or both.

STOGIES AND CHEROOTS.

Cigar-shaped rolls of cheap domestic tobacco, made quickly with no particular effort as to appearance, usually machine manufactured, and retailing at two, three or four for five cents. Stogies are usually closed at the head (or mouth end) like a cigar; cheroots are usually open at both ends.

CIGARETTES DEFINED AND CLASSIFIED.

There are seven kinds of cigarettes marketed in this country as follows:

(a) Turkish (or Egyptian),
(b) Russian,
(c) Virginia and "Turkish Blend,"
(d) Havana,
(e) Porto Rico,
(f) Mexican,
(g) Philippine.

Of these, however, the Turkish and Virginia are by far the most popular, the demand for the others being comparatively inconsequential and confined almost exclusively to the foreign population.

DEFINITIONS OF CIGARETTES.

TURKISH.

There are two kinds of Turkish cigarettes—imported and domestic. The former are cigarettes manufactured in foreign countries, such as Turkey, Egypt, Germany, Belgium, France and England, of Turkish tobacco. The latter, which as a matter of fact are most usually meant by the phrase "Turkish cigarettes," are made in this country of Turkish Tobacco. The term "Eygptian cigarettes" is practically a misnomer. As explained in the chapter on leaf tobacco, there is no tobacco grown in Egypt. Of course, in the case of a cigarette being manufactured in an Egyptian factory of Turkish tobacco, the term might be correctly applied, but so few Egyptian-made cigarettes are imported to this country that the term has no significance in the trade except as a misnomer for the Turkish article. It is claimed, however, that the oval shape in which Turkish cigarettes are now almost universally made originated in the Egyptian factories, and possibly this may have something to do with the perpetuation of the term.

RUSSIAN.

These also consist of imported and domestic cigarettes. The former are made of Russian and Turkish tobaccos in Russian factories. The latter are cigarettes of the same nature made in this country. They differ in construction from Turkish cigarettes in that they are round instead of oval and have paper mouthpieces attached.

VIRGINIA.

These are cigarettes made in this country of bright Virginia and North Carolina tobacco. With a few exceptions they are round in form, not oval.

"TURKISH BLEND."

Cigarettes made of a combination of Turkish and domestic tobaccos. Both the round and the oval shapes are used in this class.

HAVANA, PORTO RICAN, MEXICAN AND PHILIPPINE.

These are radically different from the cigarettes heretofore mentioned in that they are made of what is known in America as the cuttings of cigar-leaf tobaccos. These are the *picadura* or cuttings from the cigar factories, or the *botes* or small leaves of tobacco of the various countries from which they get their names. These cigarettes are of two classes: pectoral (those having brown paper wrappers) and white (those having white paper wrappers). The pectoral papers were so named originally on account of having been treated with a preparation supposed to have medical properties. These are usually of *algodon* or cotton paper, while the white are either of cotton or rice paper. Straw colored paper also is sometimes used. Some cigarettes of this character are made in this country of the foreign grown tobaccos, while others are the product of factories located in the countries where the tobacco is grown.

DEFINITIONS OF TOBACCOS.

SMOKING.

Smoking tobacco is divided by the trade into the following general divisions:

(a) Granulated,
(b) Long Cut,
(c) Plug Cut,
(d) Scrap.

Granulated is, as the name implies, tobacco cut or broken into granules so that it can be readily poured into the pipe without manipulation by the hands.

Plug Cut is any tobacco which is made into a plug during the process of manufacture and afterwards cut into smaller pieces. Sliced plug, cube cut, crushed plug, etc., are variations of this division.

Long Cut includes all tobaccos cut into shreds or strings, and under this heading are curly cut, Bird's-eye and most of the so-called "mixtures."

Scrap is, generally speaking, the cheapest form of smoking tobacco, and consists, as the name suggests, of scraps of tobacco leaves broken into small pieces, heavily sweetened and adapted for either smoking or chewing.

CHEWING.

Chewing tobacco is divided by the trade into the following classifications:

(a) Plug,
(b) Fine Cut,
(c) Long Cut,
(d) Scrap.

Plug, as the name signifies, is tobacco manufactured into plugs or twists and packed in wooden caddies. It is broadly classified by the trade as Burley and Green River, according to the stock from which it is made. There are other classifications based on the appearance and details of manufacture, such as light, dark, mahogany, rough, smooth, etc.

Fine Cut is chewing tobacco cut into fine shreds and marketed either in foil or paper packages, or in pails.

Long Cut is similar in appearance and manufacture to that described by the same term under the heading of smoking tobaccos; but under the chewing division it signifies tobacco so flavored and sweetened as to be suitable for chewing as well as smoking.

Scrap tobacco has already been described in the smoking division, being suitable both for chewing and for the pipe.

SNUFF.

The trade divides snuff into four kinds, as follows:

(a) Maccaboy,
(b) Rappee,
(c) Swedish,
(d) Scotch.

The latter is sub-divided as follows: *Plain, Sweet, Hightoast* and *Salt.*

The various snuffs will be more fully described subsequently in the chapter dealing with processes of manufacturing.

CHAPTER XI

THE MANUFACTURE OF CIGARS, CHEROOTS AND STOGIES

The Spanish Method Generally Used in Making Clear Havana Goods—How Seed and Havana Cigars are Made—The Use of Appliances

While many labor saving devices have been introduced in most branches of tobacco manufacture, there is a marked difference in this respect between cigars and the other forms. In the manufacture of snuff, chewing and pipe tobaccos, cigarettes and all tobacco cigarettes, machinery plays an important part.

In cigars, however, mechanical appliances have not been so generally introduced. The employment of machinery graduates from the fairly extensive use of it in making the cheapest kinds to no appliances at all in the clear Havana division.

It may be said that the finest cigars are made entirely by hand, and exactly after the fashion used two centuries ago, with no innovations or mechanical improvements. There has been much improvement in the artisanship of the work, but no rudimentary change in the method.

In the manufacture of Seed and Havana cigars, and five-cent cigars of the better class, mechanical devices may be described as aiding the hand rather than supersceding it.

From the commoner grades of nickel cigars down to the cheapest "little cigars" or short smokes machinery is more in evidence.

In the production of high-grade cigars there seems to be something in the touch of the human hand that mechanics have not been to able to imitate.

In the cigarette division it is qurte the contrary. There are machines that make cigarettes as perfectly

in every way as they can be made by hand; indeed, it is quite generally claimed in the industry that the machine does its work even better than the hand, more accurately and more uniformly.

THE MANUFACTURE OF CLEAR HAVANA CIGARS.

As the original hand method forms the basis of all others, it will be described first.

Registering and Storing.—In every step of its process through the factory, once it arrives there in bales, the merchandise receives expert attention. In *tercios* (bales) it is first "laid-down" for inspection, tested as to quality and burn, and "registered" by the manager of the factory, who, having done this, puts on the counter-marks that are used in the factory to designate the grade and *tiempo* (time) that such tobacco may be found to be in at the time registered.

After the notations are put on the bales and the records taken, these bales are then stored by vegas, which in clear language means according to the plantation on which the tobacco was grown, in *tongas* or stacks. The manner in which the bales are piled is also done according to the *tiempo* of the tobacco, since in certain condition, especially when new, they are piled sometimes high, sometimes low, on ends or on side, according to the quality and *calentura* of fermentation in which received. This process of keeping tobacco in condition is one of the most important factors in the manufacture of Havana cigars, for on it depends the proper curing necessary before the leaf is taken from the bale and put into work. In addition to the revision of registering of wrappers, countermarks are also put on these bales, designating the range of sizes for which they are best adapted, according to the brand in which they are to be used, as well as the "type" or the market or country for which they are best suited. Some high grade factories work tobacco from three to five crops, and as tobacco is bought for their express use from the districts most adapted to their brand,

Cigarmakers at Work in a Clear Havana Factory

they can in this way "go" from one crop into another and maintain their individuality or quality, which is made possible by the manner of handling tobacco in the blending room.

Preparing the Filler—Filler tobacco, like wrapper, in the bale, arrives bound into manopos or carats, each of which contains four *gavillas* or hands. Each gavilla, when time has come to work up that particular lot, is shaken to loosen the leaves separating one from another. It is then "cased" or wet, and afterwards "shaken out." After this process the tobacco is spread out to air and several hours afterwards it is either piled in baskets or in vats to get it into condition to be "stripped." This preparation is made one day for the work of the day following. The stripping of the leaf is done by girls, who, after removing the stem, puts it on boards, in heaps from three to six inches high; it is then put on racks and dried, that is to say, put into proper condition for the last or final curing process, which consists in carefully packing the tobacco in barrels which are well ventilated, and put away in the filler loft where the tobacco is kept from two weeks to a year, according to its grade and quality. The next process is that of blending, which is to mix the proper grades of tobaccos together for the purpose of making the "blend," or *liga* as it is called in Spanish, for the different sizes and grades which the factory is making. There is no stipulated number of these so-called blends, but there are on an average eight or ten standards, and sometimes the "specials" will run a great many more. After the tobacco is properly blended and inspected, it is put into large cases or departments and delivered to the galera or rolling room to be worked into cigars.

Preparing the Wrapper—As to wrappers there are sometimes quite a number of wrapper bales open at the same time, from which the tobacco is withdrawn in carats and used according to the requirements of the day. The process of casing and use of the wrapper is under the direct management of the foreman of the selecting depart-

ment, whose business it is to keep up with the requirements of each size and the market for which the cigars are intended. He also inspects selections and withdraws the wrappers from the bales accordingly; he sees personally to the casing or wetting of the same. As soon as it is withdrawn from the bale, the wrapper is shaken up, the leaves being separated one from the other to insure to each the proper amount of moisture; they are then cased, and later spread out, the water being allowed to evaporate. In this shape the tobacco is let to stand from three to five hours after which it is divided into *tarea* (day's work) for the wrapper strippers and placed in small barrels or kegs, for delivery to the selecting department in time for work on the following day.

Assorting the Wrappers—After being stripped it is given over to the different selectors—first, second assistant and third—as may have been designated; from it they make the separations, or selections, for the sizes of cigars which may be making at that time. The selections are made as to size, color, texture and quality, as well as differently for the different countries where the cigars are marketed and for the specialities the factory may be producing. There are probably from seventy-five to one hundred different selections to make, depending of course entirely upon the requirements of the factory concerned. After selections are made the wrappers are counted out in small pads of twenty-five and delivered to the cigarmakers, each of whom after receiving his wrappers gets the filler corresponding to the size of the cigar that he is making, and proceeds to the rolling.

Making the Cigars—The tools of the cigar maker consist merely of a square piece of hardwood board, a knife and a pot of gum tragacanth. He sits at a table upon which rests the board, and at which there is also a guage on which the different lengths are indicated. Fastened to the front of each table is a sack or pocket of burlap into which the cuttings that accumulate on the table are brushed. The operator

deftly cuts his wrapper from the leaf, fashions the filler into proper form and size in the palm of his hand (this is known as the "bunch") and rolls the tobacco into cigar form. In winding the wrapper around the "bunch" the operator begins at the "lighting end" of the cigar, called the "tuck," and finishes at the end that goes into the mouth, which is called the "head." A bit of gum tragacanth is used to fasten the leaf securely at the "head." The cigar is then held to the guage and is trimmed smoothly off to the proper length by a stroke of the knife at the "tuck." The cigars are taken up in bundles of fifty each.

Selecting and Packing—The cigars are revised during the day by the cigar foreman, who examines the shape, length, workmanship and conditions of the cigars rolled by each man. On the following morning a general revision is given the preceding day's work in the revision room. After the general revision the cigars are transferred to the packing department and arranged in *escaparates* (cabinets) of cedar, where they are kept from three days to a week before they are packed, in order that they may dry out. When proper condition has been attained they are assorted on large tables in the following manner: The *escogedor* (picker) starts his table in two grades, the seco (dry) and *manchado* (glossy); then these two grades, that is to say, *seco* and *manchado*, are subdivided into colors which are shaded from maduro to claro. Each is separated into from thirty-five to fifty piles of distinct shades of color. The Spanish packing is based upon from eighty to one hundred separate or subdivided colors. The *escogedor* also throws out the "seconds" and arranges the cigars to be packed in the style and quality desired.

The *escasador* (packer) then packs the cigars in boxes or bundles accordingly. After these cigars are packed they are put into a press and given the final pressure, and then banded.

Pay of Cigarmakers—When the cigarmaker ties up his bundle of fifty cigars, he attaches to it a slip of

paper upon which is marked his number. This enables the manufacturer to keep an accurate account of the number of cigars made by each workman and also to place the responsibility for any defects in the workmanship. Cigarmakers are paid by the piece, the scale of wages ranging from $16 to $100 per thousand. In nearly every factory there may be found advanced apprentices or old men working at the rate of $14 per thousand and also there may be found skilled artisans making exceptionally large odd sizes at more than $100 per thousand, but these are not generally considered in the regulation scale of prices. In averages, the workmen earn about $18 a week and make about 150 cigars a day. The wage scale will be found elsewhere in this volume.

Pasting and Shipping—Before being shipped, the boxes are opened and the cigars are reinspected by the manufacturer, who affixes a permanent color mark on the package. The goods then go to the pasting department. The boxes, when they are received from the cigar box factory, usually bear the inside trimmings and label, the edging and the front mark. In the pasting room they are further adorned with the outside label and tag, and the caution notice and internal revenue stamp are affixed. The goods are then ready for delivery.

MAKING SEED AND HAVANA CIGARS.

In the production of Seed and Havana and nickel cigars, the manufacturer is not so dependent upon the skill of the workman. Of course, the extent to which the hand manipulation is employed differs widely in the various factories, but in none is the strictly Cuban method adhered to as in the clear Havana workshop.

The Seed and Havana and nickel business embraces two methods which are sometimes used in conjunction, one with the other. These are known as "team work" and "mold work." Again, some manufacturers of these classes of cigars employ suction tables for putting on the wrappers, while some do

not, and some employ machines for making the bunches while others do not.

I will undertake first to describe the *modus operandi* in a strictly high-grade Seed and Havana factory.

Material used—There are several combinations of tobacco that are employed to a greater or lesser extent in making this kind of cigars; sometimes a Vuelta Abajo or Semi Vuelta filler, sometimes a Connecticut Broadleaf or Havana Seed binder, sometimes a fine Florida or Porto Rican Wrapper. But for the great bulk of Seed and Havanas the stock used is, for the filler, tobacco raised in the Remedios section of Cuba; for the binder, Wisconsin; for the wrapper, the finest selections of Sumatra. The tobacco is stripped, cased and prepared for the cigarmaker very much the same as in the Cuban handwork factories. In Cuban handwork, of course, the nature of the workmanship does not call for binders, and the tobacco is classified into wrappers and fillers only. In other methods a binder is required, and the binder stock is usually resweated after casing, the same as the filler.

Team Work Method—The cigarmakers are given their wrappers in pads sufficient to wrap fifty cigars each, and the binder and filler stock is portioned out accordingly. The workmen are usually grouped in teams of three, one bunchmaker and two wrapper rollers, it being calculated that two wrapper rollers are required to keep the bunchmaker busy. The wrapper rollers sit on either side of the man who shapes the bunches, and they work with knives and boards as in the Cuban factories heretofore described. The bunchmaker selects his binder leaf, and lays his sprigs of filler within it, after which he rolls the whole into cigar form, the binder forming a sort of rough wrapper around the filler. The roughly formed cigar is then taken over by the wrapper man, who cuts his wrapper and rolls it around the bunch in the same manner as that employed by the Cuban workmen.

The use of Molds—Many Seed and Havana fac-

tories and practically all nickel factories use molds in connection with this operation. These molds are of wood and hold about twenty cigars each. Their place in the cigarmaking operation is between the making of the bunch and the putting on of the wrapper. The bunchmaker, instead of passing the bunches directly to the wrapper roller, places them in the matrices of the mold and fastens down the cover, and they are there left until they have shaped themselves perfectly to the form of the matrix. They are then taken in hand by the wrapper roller, who completes the operation.

Use of Suction Tables—Suction tables are used for putting on the wrappers in nearly all large factories making nickel cigars, and they are also used extensively in Seed and Havana factories. By the aid of the suction table the process of wrapping cigars is considerably expedited, and the manipulation of the machine can be learned in a short time as compared with the years of experience required for the proficient hand-operator. The suction table operator sits at the table and places the wrapper leaf upon a perforated plate. By pressing a lever with the foot a vacuum is created beneath the plate, which holds the leaf smoothly and snugly against the surface of the table. The perforated plate is exactly the shape and size which the leaf must be to go properly around the cigar, so that by the manipulation of a roller around the sharp projecting edge of the plate, the leaf of tobacco is quickly trimmed to the exact form desired. The bunch is then taken in hand by the operator, while the leaf is still held taut and smooth by the air suction from beneath, and he deftly encases it in the wrapper.

NICKEL CIGARS, STOGIES AND SHORT SMOKES.

In addition to the contrivances already named, there are used in some nickel cigar factories machines which make the bunch itself, encasing it in the binder and delivering it ready for the molds. The operator simply feeds the tobacco leaves into the machine.

There is also in use in some factories an ingenious machine which removes the stem from the tobacco.

Stogies, cheroots and "little cigars" are made after the same fashion. In the case of stogies and cheroots both ends are left open, so that the hand operation of putting a "head" (closed point) on the article is obviated and they can be made more cheaply and quickly than regular cigars. Women are largely employed in suction table factories.

The straight-shaped all tobacco cigarette is made largely by machines, which cut the wrappers out of the leaf with a die, roll them around the fine cut filler and paste the edges together. Two girls usually operate this machine, one feeding in the filler and another feeding in the wrapper.

CHAPTER XII

THE MANUFACTURE OF CIGARETTES AND TOBACCOS

Machinery Figures Largely in these Branches—Methods of Preparing the Tobaccos—Importance of Blending in the Cigarette Trade

The cigarettes of this country, both Turkish and Egyptian, are mostly made by machinery. Machines to do this work have been perfected to such a marvelous degree that they produce the article in a more perfect form, more rapidly and at less expense, than the work can be done by hand. The hand-made industry in this line, therefore is reduced to small manufacturers, who cannot afford to lease or buy a machine; and to a comparatively small trade in odd sizes, and in small separate orders of goods marked with a private crest, monogram or name. All factories making Turkish goods have a hand-worked department to take care of special orders of this kind.

The methods of manufacture of Turkish and Virginia cigarettes are almost identical. The only notable difference is that in making the Turkish cigarettes generally no flavoring or dressing of any kind is applied to the tobacco, while in making the cheaper cigarettes of Virginia tobacco, the leaf is sometimes treated with a solution of glycerine, which serves to make the smoke smooth on the tongue. Owing to the prevalence of false notions about so-called "doping" of cigarettes, it might be well for me to reiterate that, in the better grades, there is absolutely no foreign substance of any kind applied to or contained in the tobacco; and that even in the cheaper grades, the tobacco is treated with nothing except glycerine, which is absolutely harmless, and in many cases not treated at all. And as to the paper used for wrapping the tobacco, it contains no deleterious

substance of any kind and is so thin and fragile that the ash, after the paper has been consumed is almost a negligible quantity. The paper in common use today in cigarette manufacturing is regarded by the paper making trade as the highest achievement in the paper industry, so far as purity is concerned.

The work of making cigarettes begins when the leaf tobacco is taken from the bale, or if domestic, from the barrel, and the leaves, which are sticking together as a result of the pressure, are carefully separated, one from the other.

Blending the Tobacco—In the case of Turkish tobacco, the blending is done, sometimes, by the buyer in the Orient and sometimes in the factory. If the former practice is followed, each bale received at the factory is marked so that it can be identified as the blend for the particular brand for which it is designed. If, on the other hand, the blending is done in the factory, the operation takes place immediately after the opening of the bales and the separating of the leaves.

In the blending lies the secret of successful cigarette manufacturing. Almost every other feature of the work has been reduced to general hard and fast rules and universal practice, which are about the same throughout the trade. The tobaccos coming from different localities in Turkey, or for that matter, in different parts of the United States, have different degrees of strength and different flavors, and in the mixing of these various strains of leaf so that they best suit the popular taste lies the vital element in making good cigarettes.

Preparing the Tobacco—If the tobacco happens to be in proper condition as to moisture after being blended it is immediately fed into a machine, which cuts it into the shredded form familiar to the smoker. If, however, the moisture has so evaporated in transit or in storage that the leaf is rather dry and brittle, it has to be sprayed before it is cut, else a good share of the tobacco would be lost in the form of dust. The spraying is a simple process. The leaf tobacco is simply thrown in a pile on a rubber blank-

The Packing Department of a Clear Havana Cigar Factory

et spread out on the floor and is moistened by a fine mist thrown from an atomizer attached to a rubber pipe, which connects with the regular water supply of the factory. After being sprayed, is is allowed to stand until the moisture has been thoroughly and evenly absorbed, and is then fed into the cutting machine as above described. The cut tobacco is placed in large cases or boxes, where it stands for a few hours. It is next taken into the manufacturing room.

Making the Cigarettes—The cigarette making machines are wonderful examples of mechanical invention. The operator stands at the rear of the machine and feeds the shredded tobacco into a hopper and the machine does the rest, depositing into a trough the perfect, finished cigarettes. Rolling the tobacco into form, encasing it in the wrapper, sticking the edges of the paper, printing the manufacturer's name on it and cutting the cigarette into any desired length, is all done by the one machine, and another machine puts on the tips of cork. These machines have a capacity of 200 or 300 a minute.

Packing and Shipping—From the tipping machines they go to the packers, girls, who put them in the boxes. They are then placed in air-tight humidors, from which they are removed as needed for shipment.

THE MANUFACTURE OF CHEWING AND SMOKING TOBACCO.

Plug and Twist—For plug and twist tobacco the Burley of Kentucky and Ohio and some grades of Virginia and Carolina are used for the fillers, while the wrappers are of Virginia, Carolina and White Burley. The tobacco comes to the manufacturer in casks which weigh from 700 to 1,000 pounds, the tobacco being packed in layers with only a little pressure. The manufacturing process begins with shaking out and casing the tobacco, after which it is sorted, leaf by leaf, some leaves beig suitable for one brand and some for another. After another casing, either by steam or water, the midribs are removed, and the tobacco is flavored by dipping the leaves into a receptacle containing the sauce used for flavoring. This liq-

uid is always the result of experiments by the manufacturer, some using one formula and some another. Licorice paste, cane sugar, maple sugar, molasses, and rum are among the ingredients most commonly used. Next the tobacco is weighed, being divided by weight into quantities necessary to form a plug, and each of these quantities is put into a sort of mold which presses it into plug form. Thus far only the filler stock has been used. But after leaving the shapers, the plugs are given over to workmen who put on the outside leaf or wrapper. After passing an inspection the plugs are then put under hydraulic pressure, during which they undergo a fermentation. The plugs are then reinspected, tagged and packed snugly into the strong wooden boxes in which they appear on the market.

Cut Plug—Cut plug tobaccos go through much the same process, except that they are run through a cutting machine and are packed in paper boxes or tins in quantities prescribed by the internal revenue regulations.

Fine Cut—Fine-cut chewing is made much after the fashion of smoking tobacco, except that it is treated with richer sauces.

Pipe Tobaccos—In selecting stock for pipe tobacco, other than the plug cut variety, the manufacturer selects tobaccos not so much for their absorbent qualities as in the case of chewing tobacco but more for their natural flavor and burning qualities. The leaf used consists of the preferred strains of Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Maryland, Eastern Ohio, some Turkish, Latakia, the Perique of Louisiana and occasionally a little Havana. The blend is made while the tobacco is in leaf form, portions of the various kinds being assembled according to the formula followed by the manufacturer. The leaves are then flaked, granulated or shredded by machinery and the desired flavoring is applied. Some styles of packages, especially the cloth sack variety, are put up by machinery; others are packed by hand.

THE MANUFACTURE OF SNUFF.

The actual process of snuff manufacture consists in fermentation or curing. This is but the natural process which all tobacco undergoes carried to greater length and directed by artificial means. The minutiæ of the details through which the tobacco is carried in these processes are, of course, the secrets of the individual firms, and perhaps vary to some extent with the different houses, but in the essentials they are the same, and all revolve around the fermentation process.

Fermentation—The fermentation is for the purpose of expelling the acids, "bitters" and essential oils of tobacco; and recent experiments have demonstrated that it also expels a portion of the infinitesimal quantity of nicotine that is to be found in tobacco. It has been demonstrated by scientific analysis that snuff contains only but half as much nicotine as the tobacco from which it was made, and it may be stated broadly that whatever ingredient of tobacco is capable of being translated into gas is expelled by the fermentation process.

To turn the raw material into snuff requires from eight weeks to six months. The term "snuff" is not used in this connection as meaning the finished product; and as used by the manufacturers the term indicates tobacco that has gone through the processes that give it the "snuff" quality. Thus it may be "snuff" when still in the leaf form, and some tobacco is not actually "snuff" until a number of weeks after it has been grained. This depends upon the kind of product that is intended to be produced.

Another interesting fact in connection with the manufacture of snuff is that no tobacco under two years of age is used, and much of the raw material from which snuff is made may be as much as three years old before it is considered fit for being manufactured. While it is not necessary that the tobacco should be of the fancy grades, as the color and size of the leaves are immaterial, nevertheless it must have quality—that is, body and strength. The darker types of Virginia and Tennessee tobacco are principally used.

Speaking as regards the manner of manufacture, snuff is either wet or dry.

Making Dry Snuff—In manufacturing dry snuff the tobacco passes through the various fermentation processes until the snuff quality has been secured (when it is known as snuff, even though in the leaf form), and then it is passed through dryers until it is bone dry. The graining process comes next. The snuff is ground in a muller, which process is similar to the druggists' mortar-and-pestle operation, conducted on a large scale by machinery, rollers doing the same work as the pestle. The ground product is then sieved as carefully as wheat flour, and the seasoning process follows. The work of seasoning requires from sixty days to six months, the snuff in the meantime remaining packed tightly in bags or barrels. The remainder of the work of manufacture consists merely of the detail of packing in suitable packages.

Making Wet Snuff—In manufacturing wet snuff, the final fermentation process does not take place until after the tobacco has been ground, and even though reduced by the muller to fine particles, it is "ground tobacco" and becomes snuff only when the requisite fermentation has been gone through with.

After the cure, the various flavoring ingredients are added. The one principally used is Attar of Roses.

Varieties—The different varieties of Scotch snuff are all dry. Strong or Plain Scotch is a dry unflavored product and very strong; Sweet Scotch is a dry sweet snuff, and Salt Scotch is merely dry snuff, salted. Hightoast is a heavy dry Scotch snuff, toasted much as bread is, and the toasting gives it its characteristic flavor. It is an old-fashioned snuff, and is going out of vogue.

Maccaboy is a semi-wet snuff, highly flavored, and is going out of use. It is very old-fashioned.

Swedish snuff contains a large percentage of moisture; it is very coarse and highly flavored. It is so-called because it is largely used by the Swedes. In Sweden the per capita consumption of snuff is eight or ten times as great as in this country.

Rapee is a kind of snuff made in France, or made after the French formula.

CHAPTER XIII

THE MANUFACTURE OF BRIAR AND MEERSCHAUM PIPES

The Processes Described in Detail—Where the Briar Comes from—What Amber is, and how it is Treated—Facts about Meerschaum

The wood from which briar pipes are made is the root of the White Heather, known to the botanist as Erica Arborea, a plant, or shrub, that is found in the south of France, on the slopes of the Italian Alps and on the island of Corsica. After being cleaned of earth the briar roots are sawed into rough blocks of various sizes, packed in jute sacks, and are ready for the pipe manufacturer to begin his work. Many attempts have been made to find a plant in this country that would do as a substitute for the imported briar, but without success.

The first step in the manufacture of a pipe from the briar root is to remove from the blocks all moisture. To this end they are allowed to remain in the drying room of the factory three to four months without being subjected to any artificial heat, after which they are placed in special dryers, remaining there about four weeks; and when dry as a bone they are ready for the workmen.

Skilled selectors sort and grade the different blocks according to size.

The blocks are "trimmed to size" by men operating circular saw machines; i. e., all blocks intended for the same size pipe are cut to the same length and thickness, operators trimming off the sides and ends.

The next machine hollows out the cavity intended for tobacco and shapes the upper part of the bowl.

The frazing machine forms the stem of the pipe and cuts away the wood from the lower part of the

bowl. The pipe, while in this machine, which is merely a modification of the turning lathe, receives the shape it is destined to have through the use of a steel "model."

The "upright borer" finds the centre of the "shank," or stem, drilling a hole about an inch deep.

The ferruling department determines the size of the shank, what kind of mouthpiece, etc., the pipe shall have and puts through the air hole to the tobacco chamber.

In the sandpapering department the pipe is sandpapered four times—twice with different grades of coarse sandpaper and twice with fine. The sandpapering is accomplished by holding the pipe against a rapidly revolving wooden wheel covered with sandpaper. These wheels are shaped at their edges to fit the various angles and curves of the pipe, and some of them are small enough to fit the inside of the bowl, which receives exactly the same treatment as the outside.

The pipes are put into a wire basket with coarse meshes, which is dipped several times into a vat of stain of the color desired, and then undergoes the various "buffings" that are necessary to set the stain and bring out the grain of the wood, and which constitute the first of the polishing operations. There are four buffings—a tripoli buff, a sheepskin buff, a muslin buff and a cotton-flannel buff. A buff consists of a wheel made of about eighteen layers of cloth, or leather, made to revolve at a very rapid rate around its axle. The rapidity of the revolution causes the cloth wheel to stand out rigidly, and the pipe to be polished is held against the perimeter of the wheel. The tripoli buff takes off the sediment left by the stain, and a sheepskin buff burns the coloring into the wood. The muslin buff gives a delicate finish and brings out the grain, and the cotton flannel buff gives the pipe its final polish after the bit and mountings have been put on and just before the pipe is ready for packing.

After the pipe bowls are polished they go to the mounting department, where they are bored to fit

the mouthpiece. Then the ferrule and bit are joined to the bowl, making the pipe ready for stamping. This is done on a stamping machine by means of steel dies and gold leaf, after which the pipes receive a final polish and are ready for packing and shipping.

PIPE BITS

The most popular materials for bits are hard rubber (vulcanite) and amber or its imitations. Other materials are used, but by far the largest number of pipes have bits of the first-named materials. The rubber mouthpieces are purchased by the pipe manufacturers from the rubber manufacturers. The pipe manufacturers make their own amber mouthpieces, however. The celluloid, amberoid, bakelite and other cheaper bits are also purchased by the pipe manufacturers.

Amber—Fossilized resin; is found in beds of bituminous wood, mainly in and around the Baltic Sea. Will burn, contrary to the general impression. All amber stems are ground into shape, and cannot be molded. Amber blocks, or plates, weigh from one and one-quarter to one and three-quarters pounds each; are first sawed with a band saw, then ground and polished into shape. Described more fully further on in this chapter.

Vulcanite—Manufactured sap of the india rubber tree. The best grade of stems are cut from solid blocks, are hand-made, a good deal like amber stems; are tasteless and tough. The cheaper rubber stems are molded like the celluloid.

Bakelite—A new scientific discovery, a composition. Will not burn, and is tasteless; looks like amber, costs about half the price of amber, and does not crack or break, but has a tendency to turn dark with use and exposure to strong daylight or sun. Is not made in all shapes, only a few standard sizes and shapes.

MAKING MEERSCHAUM PIPES

Meerschaum is brought into this country in lumps, or nuggets, which are roughly sorted into four sizes,

there being eight grades to each size. The polishing that the blocks receive at the mines is for the purpose of determining the quality. The best quality is very porous and contains no sand.

The manufacture of meerschaums varies from that of briars in that the machine plays a very insignificant part, all work being done by hand. The block of meerschaum is first put into water and allowed to remain there from ten to twenty minutes. It is then cut by a skilful workman with a sharp knife into a rough outline of a pipe, and goes to another, who deftly trims it more nearly into pipe shape. It then goes to a workman operating a foot-lathe, who gives the bowl its shape, and other deft fingered operatives cut away the rough edges and shave off all the roughness and inequalities that may have been left. The tobacco hole is then hollowed out by a man in charge of a machine and the air hole is drilled by another. The pipe then remains for twelve hours in the drying room where all the moisture is taken out of it. The screw is then fitted to the stem and the bit put in place. The stem is then filed to the size of the amber bit, and the "schachtel" process follows. This means that the pipe is sandpapered with sharkskin and a small bit of fine bullrush, which is known as a "schachtel-balm." The pipes are then boiled in white beeswax from three to five minutes, after which they receive their final polishing with cotton flannel and specially prepared polishing material.

Meerschaum is an excellent material for artistic carving, and some carved tobacco pipes are gems of art. Owing to the fact that the original workman of this type, who came from European countries (Germany principally), were disinclined to teach their trade to apprentices, very little of this class of work is done in this country. A great many so-called meerschaums sold in this country are made from artificial meerschaum, a material composed of the chips of dust meerschaum bonded with some solution and molded into blocks.

Planting Tobacco in Turkey

HOW MEERSCHAUM IS MINED.

Meerschaum is known chemically as hydrous silicate of magnesia. The name is derived from the German word meaning sea-foam, and the substance was so named because in olden times it was believed to be petrified sea-foam. The best quality of meerschaum is found most abundantly in Asia Minor and in lesser quantities in Greece, Spain, Morocco and Moravia. It has also been found in South Carolina, Arizona and a few other States in this Country, but not generally in marketable quality or quantity. The meerschaum from which pipes are made comes exclusively from Asia Minor. Abundant mines of it are on the Eskishehr Plains, about two hundred miles from Constantinople. The substance taken out of the mines by the surrounding inhabitants, is carried in the rough to Eskishehr. It is soft when first mined, but on being exposed to the air becomes hard. After being thoroughly dried and hardened, the lumps of meerschaum are scraped and cleaned and afterwards waxed and polished. They are then assorted into four sizes and shipped to the pipe manufacturing centers.

FACTS ABOUT AMBER

Amber is a fossilized formation found principally along the Baltic coast and near the sea coast of Prussia, where they have regular mines for working it. Under a stratum of sand and clay about twenty feet long there is a stratum of bituminous wood, which is empregnated with amber deposits. It is pretty well established that amber is a petrification of the resinous juices or gums of trees.

Amber is imported from Prussia in cakes, or plates, from seven-eighths of an inch to one and five-eighths inches thick and about eight by four inches in size. These cakes are a manufactured product, however, amber being originally mined in small odd-shaped chunks. Many years ago the practice was to carve the bit from the original piece of amber, but this was a very costly proceeding, as much of the

amber was lost in the cutting; so it is now, through a process that is the secret of the Prussian Government, which has a monopoly of the amber business, made into the cakes above described and each cake bears the imprint of the Government factory. The cakes are cut by a bandsaw into sizes suitable for the object intended to be made; the pieces are sandpapered to take out the teeth-marks of the saw, and after having been filed and cut into the shape desired, are provided with an air hole by means of a drill, after which they undergo various polishes with pumice, tripoli, etc.

If ignited Amber will burn with a pale, yellow flame, producing a good deal of black smoke and leaving a shining black carbonaceous residue. It requires an expert eye and a trained familiarity with amber to distinguish positively between it and some of the imitations which are used in the pipe trade. Amber develops electrical phenomena by friction, and this has some times been used as a test, but it is a fact that celluloid and amberoid compositions, in some qualities, can also be made to develop this phenomena; so that while in amber the electrical effect is more pronounced than in the others, the friction test is not conclusive. There are two qualities of amber, the transparent and the opaque, or clouded. The latter is much tougher and therefore more serviceable.

CHAPTER XIV

METHOD OF MANUFACTURING CALABASH PIPES

The Pipe Bowl, Made by Nature, has to be Carefully Nurtured—Practically no Machinery Used—The Inside Bowl and Fittings

Calabash pipes made from imported South African gourds have been the fashion in England for a number of years and are now in vogue in America. These pipes are formed from the crooked necks of a large gourd (Lagenaria vulgaris) belonging to the well-known group of plants which includes the cucumber, the melons, and the squashes. Pipes made from the imported gourds are expensive, American dealers usually charging six dollars and even twelve dollars apiece for them. They are the lightest pipes made for their size, are graceful in shape, color like meerschaums, and are delightful smokers.

Unlike the pipes which are turned out by machinery, no two of these calabash pipes are alike. In this lies much of their charm. In this, likewise, lies their cost, for, unlike the great mass of pipes turned out by machinery, the crook of the calabash varies so that each mouthpiece must be made to fit it and each lining of meerschaum or plaster of Paris must be specially adapted. In our land of labor-saving machinery and expensive hand labor this is what makes the pipes costly. Then, too, until quite recently these calabash gourds which form the bowls of the pipes have only been grown in South Africa, from whence they have been imported into this country. The supply has been so limited that they have been treated as novelties, and have been offered to the public at high prices.

The price now charged by dealers for the pipes is,

however, no indication of what American manufacturers would pay for the gourd necks of which they are made. Importers at present secure these necks at prices ranging from 25 cents to $2 a dozen. When it is realized that only well-formed gourds, free from blemishes, are marketable at any price, it becomes apparent that the growing of these gourds on a commercial scale does not promise any large profit.

ARTIFICIAL SHAPING OF THE GOURDS.

It was discovered that with a little care and patience it was possible to cause these gourd necks to grow into any desired shape. To do this, it is necessary to provide half-inch boards 6 by 8 inches in size, riddled with quarter-inch holes as close together as they can be bored. Each board has its accompaniment of 5 or 6 pegs, which should be about 3 inches long, whittled to fit the holes, and padded with cloth so that they will not scratch the tender gourd. One of these boards is required for each pipe until its neck is set at the right curve; then it can be removed and used for another. The young gourd when still quite young and before its delicate neck has hardened is laid on the board and gently bent in the desired direction and pegged in place. By the following day the tension will be relaxed and the fruit can be still further forced into shape. Three or four resettings of the pegs are usually enough to carry the gourd to the point where the neck is fixed in form.

Pipes formed in this manner become invested with still greater individuality. Unlimited opportunity is afforded for the exercise of ingenuity in the making of new forms and individual tastes regarding the shape of a pipe can be fully gratified. By this method gourds were formed with a double curve in the neck, making unnecessary a curved mouthpiece. If the vines run over the ground, the boards used serve the additional purpose of keeping the gourds off the soil.

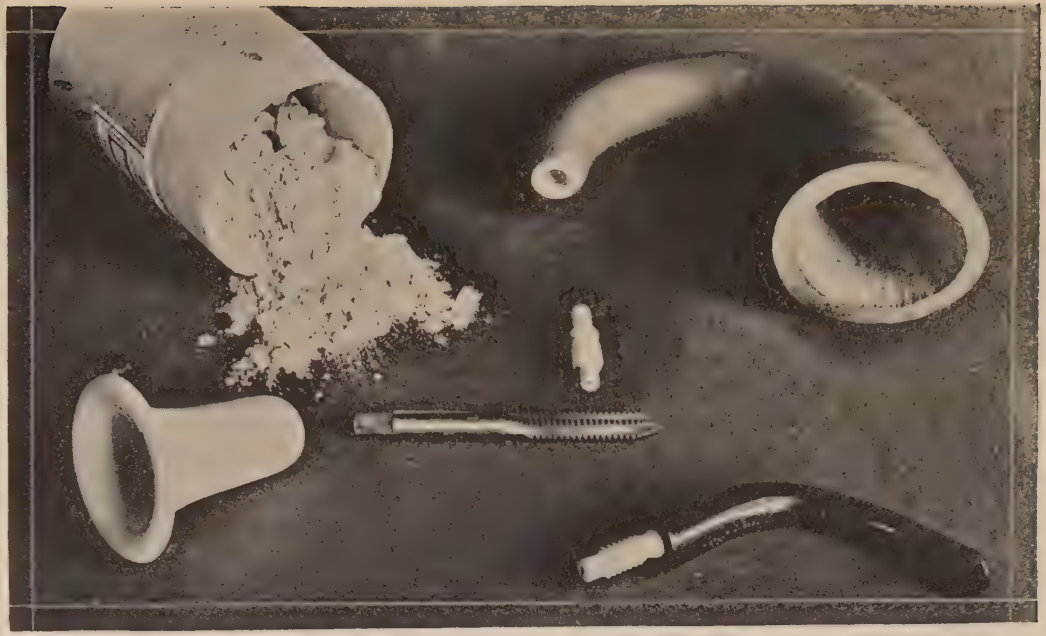
Gourd From Which the Calabash Pipe is Made.

METHODS OF MAKING THE PIPES.

To make a pipe the neck end of the gourd should be cut off and all pith carefully removed from the inside. The thin outside cuticle should be scraped off with a sharp knife before it dries; at least it comes off easier then and if left on will form food for molds. Whiting or pumice may be used for polishing the hard surface, if not smooth enough after thoroughly scraping. Sandpaper will scratch it and should not be used.

The drying of the gourds seems a simple thing, but it is in reality so difficult that it should be specially explained. After the pipe gourds are harvested, the necks, particularly if not properly cleaned and scraped, are in great danger from molds. If stored in a warm, close room for only a few days the cuticle will be covered with unsightly spots, which ruin the hard layer beneath by discoloring it. The necks, after being cleaned and scraped, will cure best if hung up in a cool, dry room where plenty of air is circulating and where they will not freeze. If a place where the sun can strike them can be found, so much the better.

The making of the pipe should be postponed until the gourds have become well seasoned. The necessary accessories are a rubber mouthpiece, a bowl, and some thin cork strips, the cost of which should not exceed fifty cents. In addition to these a few cents' worth of plaster of Paris will be needed. Cut off smoothly the tip of the small end and bore through it with a knife blade into the narrow cavity of the neck. Into this screw firmly a crooked rubber mouthpiece with its ivory-threaded nipple. If there is difficulty in getting the hard ivory to cut its own thread, even after soaking the tip of the gourd neck in hot water, a number 16-18 or 18-18 machinist's die, according to the thread of the nipple, should be used to cut the thread. The large trumpetlike end of the gourd neck is next cut with a fine saw at the proper angle and low enough so that a regular cheap meerschaum bowl will fit into it, hav-



Materials for Making a Calabash Pipe.

ing its rim flush with the outside of the gourd. A few teaspoonfuls of plaster of Paris mixed with water to form a stiff paste is spread as a thick layer for half an inch inside the rim of the gourd neck. The meerschaum bowl is first greased and then forced into place against the fresh plaster and left just long enough to allow the plaster to set slightly, not over three minutes at most; otherwise it will stick fast.

The setting for the bowl is now made, but not perfected until a strip of thin cork, such as many cigarettes are tipped with, has been glued smoothly over the surface of the plaster. Before doing this a little of the plaster of Paris should be scraped out to allow for the thickness of cork. If too much is removed and the bowl is loose the difficulty can be corrected by cutting down the edge of the gourd. This can best be done with a flat file or by holding the end of the gourd against the side of a grindstone. When properly done the meerschaum bowl fits snugly, but is easily removed by a twist of the fingers when the pipe is to be cleaned.

This is the completed pipe, and with all the necessary things at hand it can be made in half an hour.

Many smokers prefer a push stem and the calabash lends itself readily to this style of pipe. Recourse must again be had to the tobacconist for the mouthpiece, and this time instead of the bone nipple a ferrule of suitable size must be secured. The operation is exactly the same as for the fitting of the screw stem up to the time that the hole is made in the small end with a pocket knife. For a push stem this should be continued until the hole is slightly larger than the stem to be used. If the ferrule is of the proper size it is then only necessary to force it into place over the end of the gourd and the pipe is complete.

When a push stem is used the bowl can be made entirely of plaster of Paris and the cost of the pipe still further reduced. A thin piece of cardboard with a central perforation is fitted into the gourd just below the point where the bottom of the bowl

is to come. A thin mixture of plaster of Paris is then poured into the gourd to form a layer about a quarter of an inch thick on the pasteboard disk. Any smooth cylindrical object, such as a homeopathic vial with a diameter suitable for the inside of a bowl, is well greased and placed upright in the end of the gourd to form a core. The space around the core is then filled with plaster of Paris, and as soon as it has begun to set the core is removed. A small perforation in the bottom of the bowl about the size of a large knitting needle is made as soon as the plaster of Paris has completely set and the pipe is complete.

This style of bowl is permissible in a push-stem pipe, since the pipe can be readily cleaned from the stem end, thus obviating the necessity of a removable bowl.

A well-made calabash pipe will appeal to the discriminating pipe smoker as possessing the much valued characteristics of the long German pipe in a much more convenient form. The bowl occupies but a small part of the hollow neck and the remainder of the space forms a receptable below the bowl that answers the same purpose as the lower bowl of the German pipe in keeping juices from entering the stem and allowing the smoke to cool.

CHAPTER XV

THE MANUFACTURE OF CLAY AND CORNCOB PIPES

How Cheaply and Rapidly these Goods are Produced —Importance of the Corncob Business in Washington, Mo.

Ninety-seven per cent. of the cob pipes manufactured in the United States are made in the little town of Washington, on the bank of the Missouri, about fifty miles from the city of St. Louis. Who made the first cob pipes is a matter of learned dispute in the town of Washington, the honor being claimed by many. It is said that Daniel Boone, the hunter and pioneer, always smoked a "Missouri meerschaum." It is also contended that cob pipes were first used by the Indians, and as both corn and tobacco are original products of America, and were cultivated by the Indians, it is very probably that the statement is correct.

The cob pipe industry has been of great value to the Missouri bottom farmer. The soil and climate seem to be most favorable for producing the kind of corn suitable for pipes, *i. e.,* an ear with a large cob. This fact, combined with selection and other special treatment, has produced a species of corn, the cob of which is abnormally large both in length and diameter.

The value of this product may be realized when it is known that the farmer receives about as much for the cobs as he does for the corn. One acre of ground there will produce about 4,000 good cobs, which are worth on an average about $2.80 per thousand.

After shelling, the cobs are sorted, and only the largest are taken to market. The factories keep on hand about 6,000,000 cobs each. On an average each

cob will produce one and one-half pipes. The 27,000,000 pipes made in Missouri require 18,000,000 cobs, which, at $2.80 per thousand, makes a sum of $50,400 that the Missouri farmers receive each year for their cobs, which were formerly a waste product.

Chutes lead from the storehouse to the factory, into which the cobs are shoveled and discarded into the saw room, where they are caught in a box. The boxes of cobs are carried to an automatic sawing machine and are cut into proper lengths for pipes. The sawing machine discharges the cobs onto a conveyor, which takes them to another conveyor, where they are sorted into three grades and taken to the boring machine, which cuts the hole for the tobacco.

All of the pipes are hand turned. It would seem that automatic machines should be used for this purpose, but the fact that no two cobs are of the same size and the fact that one factory makes seventy-five different designs of pipes, renders machine turning impracticable.

After turning, the pipes are put into a rumbler, which is a large revolving cylinder of wood, riddled with holes about one-half inch in diameter. This treatment removes any loose fibre which may adhere to the cob, after which they are charged into the filling machine. This is also a wooden cylinder and has a capacity of forty gross of pipes at one charge. In this machine the pipes are revolved in a thin solution of plaster of paris, from thirty to forty minutes, and all pores and crevices are compactly filled with the plaster.

After two days in the drying room the pipes go to the first sandpapering and varnishing machine, which first sandpapers and then gives them a coat of varnish, at the rate of 112 pipes per minute. They are then dried for two days and are fed to the slickening machine. In this machine the spindles reverse so that each pipe is sandpapered both with and against the grain.

The pipes which now have a smooth, hard surface are fed between two rapidly revolving discs

covered with sandpaper, by which the ends are smoothed. They are then fed into the tubes of the stem hole boring machine which bores these holes at the rate of seventy-five per minute.

The pipe now goes to the labeling machine, which automatically labels fifty pipes per minute.

After passing through a varnishing machine which is operated by boys and varnishes 45,000 pipes per day, the pipes are dried and packed in cases for shipment.

The stems are made from Arkansas cane and from Weiscatl wood which is imported from Germany. The making of the stems is very fast work and is done by boys. The pipes and stems are packed in separate cases and go to the storeroom to await shipment.

HOW CLAY PIPES ARE MADE

The clay is first ground and mixed in a mill resembling an enormous coffee grinder, after which it is dried, or tempered, as the technical expression has it, until it is of the proper consistency for the molder's hands. The skilled workman takes the soft, pliable material, which has been rolled by an assistant into the shape of a piece of macaroni with a lump at the end, the macaroni-like portion being the stem and the lump the bowl. With almost incredible swiftness and accuracy he runs a long steel needle through the whole length of the stem to make the draft, and then lays the clay into a steel mold, which splits open in the middle like a clam shell. This mold is put into a press, and one turn of the wrist squeezes it tightly together. Another movement brings down the lever, which punches out the bowl, and the pipe is ready for the finisher, who scrapes off all rough edges and irregularities. The pipes are then laid on trays and allowed to dry. They are next put into a kiln and baked twenty-four hours, at the end of which time they are taken out and cooled, and the operation is complete.

CHAPTER XVI

THE MANUFACTURE OF CIGAR BOXES

"Spanish Cedar," the Wood that has an Affinity for Tobacco—Quantities and Kinds of Wood Used by the Box Makers

It is a peculiar fact that Cuba, which furnishes what is generally accepted as the best tobacco, contributes also the most favored wood for making cigar boxes. It is a belief of long standing in the cigar trade that this wood, known as "Spanish cedar," has a marked affinity for Havana tobacco, and that even the best cigars are improved in flavor by the qualities which they absorb from the wood of the Cuban cedar box.

CIGAR BOX LUMBER.

Years ago nothing but Cuban cedar was used in the manufacture of boxes for Havana cigars; but as the forests near the waterways were gradually thinned by the woodman's axe and the cedar became more difficult to procure and to transport to shipping points, box manufacturers were compelled to seek elsewhere for a part of their supplies.

It was found that in some sections of Mexico a species of cedar was obtainable which is almost, if not quite, as well adapted to cigar box purposes as the Cuban wood, so that today the better grades of cigar box lumber come from Manzanilla, Cuba, and from the neighborhood of Vera Cruz, Mexico. Naturally, the better grades of this lumber are selected for the higher-priced boxes, while the poorer grades go into boxes for the cheaper goods. There are also made large quantities of boxes from domestic white wood, the boxes from this lumber being used for the extremely cheap grades of cigars.

HOW THE BOXES ARE MADE.

The box-making business has been reduced almost entirely to a mechanical operation, the material being planed, cut, sawed and nailed by machinery. The box manufacturer usually trims the box in part, that is, he puts on the inside trimmings and the edging, in which shape the box goes to the cigar factory. The cheapest box made costs the cigar manufacturer at the rate of about six cents each, and the price ranges from that up to eight or nine cents. Fully trimmed, however, with the outside label, tag, etc., which is affixed by the cigar manafacturer, the cost of a good-grade box approxinmates about twelve cents. The various sizes of cigar boxes are designated as tenths, twentieths, fortieths and eightieths. These terms are derived from the fractional division of 1,000; i. e., a fortieth packing is a box containing, or intended to contain, twenty-five cigars, or the fortieth part of a thousand cigars.

No man knows exactly how many cigar boxes are annually made in the United States, or how many feet of lumber go into them, according to *Barrel and Box*. The Government has published figures covering about one-half of the United States, and the figures are pretty accurate for that area. A good deal of difficulty is experienced in reducing statistics to board feet in order to obtain a common basis of measurement, because many cigar box makers buy veneer of different thicknesses; some buy lumber and some purchase logs. Making due allowance for unavoidable errors in reducing the mass of statistics to board feet, the following table shows the Government's figures as far as they have been published:

Kind.	Ft. Board Meas. Per Year.
Spanish Cedar	20,290,358
Yellow Poplar	4,610,250
Basswood	3,703,500
Tupelo	3,081,800
Red Gum	3,058,750

White or Soft Elm	1,672,500
Cypress	1,559,027
White Oak	228,200
Red Oak	175,000
Mahogany	161,000
Sycamore	160,000
Black Gum	100,000
African Cedar	31,000
Sugar Maple	23,450
Red Cedar	20,000
Redwood	16,000
Balm of Gilead	1,250
Circassian Walnut	250
Rosewood	100
Total	38,892,352

These statistics represent all regions of the United States, from Florida to Maine, and from Virginia to California, but only some of the States, because the investigation is being made by States. With authentic figures covering half the country an estimate is made for the remaining sections. That gives a total annual use of cigar box lumber in the United States of 58,338,802 board feet.

It is impossible to be wholly accurate in estimating how many cigar boxes that much lumber will make. Different manufacturers will reach different conclusions. There is no standard size, but the various sizes range from boxes for a dozen up to capacities for 100 or more; and different thicknesses of wood are used.

Suppose that one board foot of lumber is good for four cigar boxes; the total number of boxes made yearly in the United States reaches the enormous number of 233,355,208. That is probably not too high an estimate.

This estimate of course takes no account of containers made from tin, paper-mache, or card board, or glass jars, which serve the purpose of cigar boxes.

PART IV

LAWS AND REGULATIONS

CHAPTER XVII

THE GOVERNMENT TAXATION OF TOBACCO

A Review of the Tax Schedules that have been Enforced Since 1862—Present Internal Revenue Taxes —The War Taxes—Customs Duties

On July 1, 1862, ad valorem internal revenue taxes were imposed upon cigars as follows: Valued at not over $5 per M, $1.50 per M; valued at over $5 and not over $10 per M, $2 per M; valued at from $10 to $20 per M, $2.50 per M; valued at over $20 per M, $3.50 per M.

That law was repealed June 30, 1864, when new rates were prescribed on cigars as follows: Valued at not over $5 per M, $3; valued between $5 and $15 per M, $8; valued from $15 to $30 per M, $15; valued from $30 to $45 per M, $25; valued at over $45 per M, $40. In that law cheroots and cigarettes were taxed separately for the first time. The rate on cheroots was fixed at $3 per M, provided they were not worth over $5 per M. On cigarettes valued at not over $6 per 100 packages of 25 each, a tax of $1 per 100 packages was prescribed and on cigarettes valued at over $6 per 100 packages of 25 each, the rate was $3 per 100 packages, while there was a special tax of $3 per M on cigarettes made wholly of tobacco.

In 1865 the law was changed again, there being a flat tax of $10 per M upon "cigars and cheroots made wholly of tobacco or any substitute therefor." By the same law taxes of 5 cents per package were levied on cigarettes valued at not over $5 per 100 packages of 25 each, five per cent. on cigarettes valued at over $5 per 100 packages and $10 per M on

cigarettes made wholly of tobacco or of any substitutes therefor."

The act of 1866 imposed taxes of $2 per M upon cigars, cigarettes and cheroots valued at $8 per M or less, $4 per M upon the same if valued at from $8 to $12 per M, and $4 plus 20 per cent if valued at over $12 per M. The following year there was a tax of $5 per M assessed on cigars, cheroots and cigarettes of all descriptions, but in 1868 that rate was limited to cigars and cheroots, while cigarettes were divided into two classes by weight, the same division that prevails today. The rates in 1868 were $1.50 per M upon cigarettes weighing not over three pounds per M and $5 per M upon cigarettes weighing over three pounds per M.

In 1875 the tax on cigars and cheroots was advanced to $6 per M, while little cigarettes went to $1.75 per M and big cigarettes to $6. Next came a reduction in 1883 to $3 per M on cigars and cheroots, and 50 cents on little cigarettes, and $3 on big cigarettes. For over fourteen years there was no change until the act of July 24, 1897, the Dingley tariff law, divided cigars according to weight as they are at present. The rates of internal revenue fixed by that law were $3 per M on big cigars, $1 on little cigars, $3 on big cigarettes and $1 on little cigarettes.

The following year the Spanish war necessitated increases to $3.60 per M on big cigars and big cigarettes and $1.50 on little cigarettes, the rate of $1 remaining unchanged on little cigars. In 1901 big cigars dropped back to $3 while little cigars were reduced to 54 cents per M. The next year big cigarettes were lowered to $3. From 1901-1902 until 1909, when the Aldrich-Payne law was enacted, little cigarettes paid ad valorem internal revenue taxes as indicated above.

Since 1909 the internal revenue rates on tobacco products have remained unchanged at $3 per M on big cigars, seventy-five cents on little cigars, $3.60 per M on big cigarettes, $1.25 on little cigarettes and eight cents per pound on manufactured tobacco and snuff. At these rates the revenue

receipts during the fiscal year ended July 1, 1914, were roughly $35,000,000 on tobacco and snuff, over $18,000,000 on cigarettes and nearly $24,000,000 on cigars.

The tax rates on "manufactured tobacco" have also been varying with the years. In July, 1862, the rate was fixed at two cents per pound on smoking tobacco "made exclusively of stems," which was thirty-five cents on "smoking of all kinds not otherwise provided for," forty cents on Cavendish, plug, twist, etc., and fine-cut chewing, and forty cents on snuff. In the following year the rates were revised again with this result: fifteen cents on "smoking, not sweetened, stemmed, or butted," thirty cents on "tobacco twisted by hand, etc.," and fine-cut shorts, forty cents on smoking tobacco if "sweetened, stemmed or butted" and forty cents on chewing tobacco. In 1868 the tax was thirty-two cents per pound on "chewing, etc., smoking, etc., part of the stems removed," sixteen cents on "smoking, exclusive of stems, etc.," and thirty-two cents on snuff. A tax of twenty cents per pound was assessed in 1872 upon tobacco, "all kinds, except snuff, cigars, cheroots and cigarettes." This was increased to twenty-four cents in 1875 and dropped to sixteen cents in 1879 and eight cents in 1883.

In 1890 a law was passed reducing the tax on smoking and manufactured tobacco and snuff to six cents. In 1898 manufactured tobacco and snuff were raised to twelve cents a pound tax owing to the Spanish War, but the rate was reduced to six cents in 1902. The Aldrich-Payne law made an increase to eight cents in 1909.

PREVAILING RATES OF TAXATION.

From 1909 and up to the present time the rates of internal revenue taxation were as given in the appended table, with the exception of the additions made in 1914, because of the European war, which are indicated further on.

Tobacco, Internal Revenue Tax on cigarettes
weighing not over three pounds per M.....per 1,000 $1.25

Internal Revenue Tax on cigarettes weighing over three pounds per M.	per 1,000	$3.60
Internal Revenue Tox on cigars weighing over three pounds per M.	per 1,000	$3.00
Internal Revenue Tax on cigars weighing not over three pounds per M.	per 1,000	.75
Internal Revenue Tax on smoking and chewing	per lb.	.08
Internal Revenue Tax on snuff	per lb.	.08

CUSTOMS DUTIES ON TOBACCO.

Cigars, cigarettes, cheroots*	per lb. $4.50 and 25% ad val.
Cigar Cabinets	35% ad val.

LEAF TOBACCO, ETC.*

Unstemmed filler	per lb. 35c.
Unstemmed wrapper	per lb. $1.85
Stemmed filler	per lb. 50c.
Stemmed wrapper	per lb. $2.50
Scrap tobacco	per lb. 35c.
Stems	Free
All other tobacco mfd. or unmfd, including snuff	per lb. 55c.

*Tobaccos and tobacco products imported from Cuba receive a tariff reduction of twenty per cent. from the above rates.

PIPES, SMOKERS' ARTICLES, ETC.

Cigar and cigarettes cases and cutters	60% ad val.
Cigar and cigarette holders of metal	60% ad val.
Cigarette books and book covers	50% ad val.
Briar Root, etc.	10% ad val.
Spanish sedar (boards)	10% ad val.
Spanish cedar (logs)	Free
Pipes (clay)	25% ad val.
Cork paper	30% ad val.
Pipes and pipe bowls (briar, etc.)	50% ad val.
Smokers' articles	50% ad val.
Cigars and cigarette holders, not of metal	50% ad val.
Pouches	50% ad val.
Meerschaum	20% ad val.
Raw Amber	per lb. $1.00
Amberoid	per lb. $1.00
Licorice Root	per lb. 1c.
Licorice Paste	per lb. 1c.
Licorice (extract)	per lb. 1c.
Matches	In boxes of 100 gross boxes, 3c. Over 100 per 1,000 matches 3/8c.
Wax Matches	25% ad val.
Matches in books or folders	25% ad val.

CIGAR LABELS AND BANDS

Cigar labels and flaps printed in less than eight colors ..... per lb. 15c.
In eight or more colors ..... per lb. 20c.
In whole or part of metal leaf ..... per lb. 35c.
Cigar bands, printed in less than eight colors ..... per lb. 20c.
In eight or more colors ..... per lb. 25c.
In whole or part of metal leaf ..... per lb. 40c.

Filler tobacco when packed with more than fifteen per cent wrapper tobacco, pays the wrapper rate.

Wrapper tobacco is defined to be "that quality of leaf tobacco which has the requisite color, texture and burn, and is of sufficient size for cigar wrappers." Filler tobacco is all other tobacco.

Tobacco and tobacco products imported in American bottoms receive a five per cent. reduction from above rates, except where treaty obligations would be violated thereby.

Tobacco and tobacco products may be imported from the Philippines free of duty in unlimited quantities.

The law contains a provision for manufacturing cigars in bond for domestic consumption or export, providing such cigars are made entirely of tobacco coming from one country.

THE SO-CALLED "WAR TAX" ON TOBACCO.

In October, 1914, a measure was enacted providing for an increase of Internal Revenue to offset the loss of customs duties, which followed the declaration of war between Germany and allied nations in Europe.

This law went into effect November 1, 1914, and was to expire December 31, 1915, unless further extended. Following is the tobacco section of the law:

TOBACCO DEALERS AND MANUFACTURERS.

"Sec. 4. That on an after November first, nineteen hundred and fourteen, special taxes on tobacco dealers and manufacturers shall be and hereby are imposed annually as follows, the amount of such annual taxes to be computed in all cases on the basis of the annual sales for the preceding fiscal year.

"Dealers in leaf tobacco whose annual sales or transfers do not exceed fifty thousand pounds shall each pay $6. Dealers in leaf tobacco whose annual sales or transfers exceed fifty thousands and do not exceed one hundred thousand pounds shall pay $12, and if their annual sales or transfers

exceed one hundred thousands pounds shall pay $24: Provided, That dealers in leaf tobacco whose annual sales or transfers do not exceed one thousand pounds shall be exempt from the tax herein imposed on dealers in leaf tobacco.

"Dealers in tobacco, not specially provided for in this section, whose annual receipts from the sale of tobacco exceeds $200, shall each pay $4.80 for each store, shop, or other place in which tobacco in any form is sold.

"Every person whose business it is to sell, or offer for sale, manufactured tobacco, snuff, cigars, or cigarettes shall be regarded as a dealer in tobacco: Provided, That no manufacturer of tobacco, snuff, cigars, or cigarettes shall be required to pay a special tax as a dealer in manufactured tobacco, snuff, cigars, or cigarettes for selling his own products at the place of manufacture.

"Manufacturers of tobacco whose annual sales do not exceed one hundred thousand pounds shall each pay $6.

"Manufacturers of tobacco whose annual sales exceed one hundred thousand and do not exceed two hundred thousand pounds shall each pay $12.

"Manufacturers of tobacco whose annual sales exceed two hundred thousand and do not exceed four hundred thousand pounds shall each pay $24.

"Manufacturers of tobacco whose annual sales exceed four hundred thousand and do not exceed one million pounds shall each pay $60.

"Manufacturers of tobacco whose annual sales exceed one million and do not exceed five million pounds shall each pay $300.

"Manufacturers of tobacco whose annual sales exceed five million and do not exceed ten million pounds shall each pay $600.

"Manufacturers of tobacco whose annual sales exceed ten million and do not exceed twenty million pounds shall each pay $1,200.

"Manufacturers of tobacco whose annual sales exceed twenty million pounds shall each pay $2,496.

"Manufacturers of cigars whose annual sales do not exceed one hundred thousand cigars shall each pay $3.

"Manufacturers of cigars whose annual sales exceed one hundred thousand and do not exceed two hundred thousand cigars shall each pay $6.

"Manufacturers of cigars whose annual sales exceed two hundred thousand and do not exceed four hundred thousand cigars shall each pay $12.

"Manufacturers of cigars whose annual sales exceed four hundred thousand and do not exceed one million cigars shall each pay $30.

"Manufacturers of cigars whose annual sales exceed one million and do not exceed five million cigars shall each pay $150.

"Manufacturers of cigars whose annual sales exceed five milion and do not exced twenty million cigars shall each pay $600.

"Manufacturers of cigars whose annual sales exceed twenty milion and do not exceed forty million cigars shall each pay $1,200.

"Manufacturers of cigars whose annual sales exceed forty million cigars shall each pay $2,496.

"Manufacturers of cigarettes whose annual sales do not exceed one million cigarettes shall each pay $12.

"Manufacturers of cigarettes whose annual sales exceed one million and do not exceed two million cigarettes shall each pay $24.

"Manufacturers of cigarettes whose annual sales exceed two million and do not exceed five million cigarettes shall each pay $60.

"Manufacturers of cigarettes whose annual sales exceed five million and do not exceed ten million cigarettes shall each pay $120.

"Manufacturers of cigarettes whose annual sales exceed ten million and do not exceed fifty million cigarettes shall each pay $600.

"Manufacturers of cigarettes whose annual sales exceed fifty million and do not exceed one hundred milion cigarettes shall each pay $1,200.

"Manufacturers of cigarettes whose annual sales exceed one hundred million cigarettes shall each pay $2,496.

"In arriving at the amount of license tax to be paid hereunder, and in the levy and collection of such tax, each person occupation for which special taxes are imposed by this Act, without having paid the special tax herein provided, shall, besides being liable to the payment of such special tax, be deemed guilty of a misdemeanor, and upon conviction thereof shall pay a fine of not more than $500, or be imprisoned not more than six months, or both, at the discretion of the court.

"Provided, That the special taxes imposed by this Act, and payable during the special-tax year ending June thirtieth, nineteen hundred and sixteen, shall be collected and paid proportionately for the period during which such taxes shall remain in force during said year."

The law provides that: "In arriving at the amount of license tax to be paid hereunder and in the levy and collection of such tax each person, firm, or corporation engaged in the manufacture of cigars, cigarettes (including little cigars), or tobacco shall be considered and deemed a single manufacturer."

For war tax purposes, little cigars are regarded as cigarettes and are so taxed.

CHAPTER XVIII

LAWS AND REGULATIONS GOVERNING THE TOBACCO TRADE

Legalized Packages—Restrictions on Inserting Coupons, Etc.—Official Requirements for Leaf Dealers and Manufacturers

The United States Government derives an income of about $80,000,000 annually from tobacco through internal revenue taxes alone, not to mention customs duties. In order to conserve its revenues from this source it maintains a rigid surveillance over the tobacco industry and vigorously prosecutes the slightest infractions of the laws made to expedite tax collections. It is, therefore, to the interest of the cigar dealer to be well versed in the regulations and restrictions which all handlers of tobacco are expected to observe.

The rates and regulations given here are those existing in 1914 when this issue of "A Textbook on Tobacco" went to press.

LEGALIZED PACKAGES.

The various packages in which tobacco products may be put up are prescribed in sections 3362 and 3399 of the Revised Statutes as follows:

"Sec. 3362. All manufactured tobacco shall be put up and prepared by the manufacturer for sale, or removal for sale or consumption, in packages of the following description and in no other manner:

"All smoking tobacco, snuff, fine-cut chewing tobacco, all cut and granulated tobacco, all shorts, the refuse of fine-cut chewing, which has passed through a riddle of thirty-six meshes to the square inch, and all refuse scraps, clippings, cuttings, and sweepings of tobacco, and all other kinds of tobacco

not otherwise provided for, in packages containing one-half ounce, three-fourths of an ounce, and further packages with a difference between each package and the one next smaller of one-fourth of an ounce up to and including four ounces, and packages of six ounces, seven ounces, eight ounces, ten ounces, twelve ounces, fourteen ounces and sixteen ounces. Provided, That snuff may, at the option of the manufacturer, be put up in bladders and in jars containing not exceeding twenty pounds.

"All cavendish, plug, and twist tobacco, in wooden packages not exceeding two hundred pounds net weight.

"And every such wooden package shall have printed or marked thereon the manufacturers name and place of manufacture, the registered number of the manufactory, and the gross weight, the tare and the net weight of the tobacco in each package: Provided, That these limitations and descriptions of packages shall not apply to tobacco and snuff transported in bond for exportation and actually exported: And provided further, That Perique tobacco, snuff flower, fine-cut shorts, the refuse of fine-cut chewing tobacco, refuse scraps, clippings, cuttings, and sweepings of tobacco, may be sold in bulk as material, and without the paymemnt of tax, by one manufacturer directly to another manufacturer, or for export, under such restrictions, rules and regulations as the Commissioner of Internal Revenue may prescribe: And provided further, That wood, metal, paper, or other materials may be used separately or in combination for packing tobacco, snuff and cigars, under such regulations as the Commissioner of Internal Revenue may establish.

* * *

"All cigars weighing more than three pounds per thousand shall be packed in boxes not before used for that purpose, containing respectively five, ten, twelve, thirteen, twenty-five, fifty, 100, 200, 250 or 500 cigars each; * * * and provided further that every manufacturer of cigarettes shall put up all the cigarettes that he manufactures or has man-

ufactured for him, and sells or removes for consumption or use in packages or parcels containing

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five, eight, ten, fifteen, twenty, fifty or 100 cigarettes each."

REGISTRY AND BONDS.

Section 26 of the act approved October 1, 1890, provides that every dealer in leaf tobacco, manufacturer, and peddler shall register with the collector of the district his name, or style, place of residence, trade or business, and the place where such trade or business is to be carried on, and a failure to register as required shall subject such person to a penalty of $50.

Section 35 of the act approved August 5, 1909, provides that every retail dealer in leaf tobacco shall register with the collector of the district his name or style, place of residence, trade or business, and the place where such trade or business is to be carried on; and a failure to register as required shall subject such person to a penalty of $50.

Every person who engages in business as peddler of tobacco, dealer in leaf tobacco, retail dealer in leaf tobacco, or as a manufacturer of tobacco or cigars, is required to make return for registry, on Form 277, to the collector of his district on commencing business, and annually thereafter, on the 1st day of July of each year.

The return for registry must be made to the collector or deputy collector within the calendar month in which registry is required, and failure to so register should be reported to the Commissioner of Internal Revenue, and the United States district attorney, with the collector's recommendation. (T. D. 1612, April 4, 1910)

COLLECTOR'S CERTIFICATE.

Upon receiving a return for registry on Form 277, properly executed (and after accepting the statement and approving the bond of a peddler or manufacturer), the collector will issue to the person named therein a certificate of registry, which must at all times be conspicuously displayed in his or their place of business. Such certificates are not transferable.

BONDS AND SURETIES.

The bond required to be given by peddlers of tobacco and manufacturers of tobacco, snuff, cigars, and cigarettes under sections 3381, 3355, and 3387, of the Revised Statutes, respectively, will not be executed for any fixed period of time, the liability will be a continuing one, without regard to whether a guaranty or surety company executing the same may collect from the principal an annual premium of fee. There should be not less than two personal sureties.

SALE OF TOBACCO PRODUCTS.

DEALERS IN TOBACCO—DEFINITION.

The eighth subsection of section 3244 of the Revised Statutes provides that every person whose business it is to sell or offer for sale manufactured tobacco, snuff, or cigars

(including cigarettes) shall be regarded as a dealer in tobacco.

Dealers in tobacco are not required to register.

Manufactured tobacco, snuff, cigars, and cigarettes before removal from factory or custom-house must be put up in packages of such sizes or numbers as are authorized by sections 3362 and 3392 of the Revised Statutes, stamped, and the stamps canceled as prescribed hereinafter in these regulations. In addition, packages of domestic manufacturers must bear the required caution notice, and be marked or branded, while imported cigars or cigarettes must have the required customs stamp affixed to the packages and the same canceled.

The sale or offering for sale of manufactured tobacco, snuff, cigars, or cigarettes from the stamped packages, except at retail by retail dealers, is prohibited by sections 3363 and 3392 of the Revised Statutes, and when sold by a retail dealer these products must remain at all times in the original packages and be protected by the stamps until sold and delivered to customers. If found on the market outside of the original packages in which they were packed, they are subject to seizure forfeiture under sections 3373 and 3398 of the Revised Statutes, which provide that the absence of the proper stamp on any package of manufactured tobacco, snuff, cigars, or cigarettes shall be notice to all persons that the tax thereon has not been paid, and shall be prima facie evidence of the nonpayment thereof, and such products shall be forfeited to the United States.

Each package containing tobacco or snuff sold by one dealer to another for resale must contain the original tobacco and snuff, and in quantity coressponding with the denomination of the stamp affixed to the package. A dealer cannot lawfully receive or have in his possession manufactured tobacco, snuff, cigars, or cigarettes removed from the original stamped packages. Such unstamped articles exposed for sale or exhibited in show windows, show cases, glass jars, or otherwise by dealers, wholesale or retail, are forfeitable and must be seized.

A dealer in tobacco for the purpose of soliciting trade is not privileged to repack any number of cigars in an unstamped box for transmission by mail, express, or other method of delivery to prospective customers. No provision is made by law or the regulations for free samples of cigars or cigarettes.

EMPTIED PACKAGES.

Section 3376 of the Revised Statutes provides that—

Whenever any stamped box, bag, vessel, wrapper, or envelope of any kind, containing tobacco or snuff is emptied, the stamp or stamps thereon shall be destroyed by the person in whose hands the same may be.

Section 3406 of the Revised Statutes provides that—

Whenever any stamped box containing cigars, cheroots, or cigarettes is emptied, it shall be the duty of the person in whose hands the same is to destroy utterly the stamps thereon.

These statutes apply with particular force to packages made of glass and such other material as will not admit of the complete erasure of the factory number, the number of the district and the State, and the caution-notice label.

It is therefore absolutely necessary when any package made of glass or such material as the above referred to are emptied of the cigars originally contained therein that the stamp thereon shall be utterly destroyed under pains and penalties denounced, and if any such containers are found upon the premises of a dealer emptied, any officer of the Internal Revenue Service may destroy the same upon discovering that any portion of the stamp remains attached thereto.

PEDDLERS OF TOBACCO.

Subsection 11 of section 3244 of the Revised Statutes provides that any person who sells, offers to sell and deliver, manufactured tobacco, snuff, or cigas (including cigarettes), traveling from place to place, in the town or through the country, shall be regarded as a peddler of tobacco.

RETURN FOR REGISTRY.

Every person engaging in the business of peddler of tobacco, shall, upon commencing business, and annually on the 1st day of July of each year, file a return for registry on Form 277 with the collector of the district, giving his name, residence, and trade or business.

PEDDLER'S STATEMENT AND BOND.

Section 3381 of the Revised Statutes of the United States, as amended by the act of October 1, 1890, provides that—

Every peddler of tobacco, before commencing, or, if he has already commenced, before continuing to peddle tobacco, shall furnish to the collector of his district a statement accurately setting forth the place of his residence, and, if in a city, the street and number of the street where he resides, the State or States through which he proposes to travel: also whether he proposes to sell his own manufactures or the manufactures of others, and if he sells for other parties, the person for whom he sells. He shall also give a bond in the sum of five hundred dollars, to be approved by the collector of the district.

In pursuance of the provisions of sections 3381, every peddler of tobacco, before commencing business, or, if already commenced, before continuing to peddle tobacco, snuff, cigars, or cigarettes, shall furnish to the collector of his district a statement, on Form 95.

The peddler's statement should show the States through which he intends to travel, but it will be deemed sufficient if instead of designating any particular city, country, or State the statement should read "through the several States of the United States."

He shall also be commencing business execute a bond on Form 111 in the penal sum of $500, to be approved by the collector of the district.

DEALERS IN LEAF TOBACCO.

DEFINITION.

Subsection 6 of section 3244 of the Revised Statutes provides that every person shall be regarded as a dealer in leaf tobacco whose business it is, for himself or on commission, to sell, or offer for sale, or consign for sale on commission, leaf tobacco.

RETURN FOR REGISTRY.

Every person engaged in the business of dealer in leaf tobacco shall, upon commencing business, and annually on the 1st day of July of each year, make a return for registry on Form 277, with the collector of the district, giving his name, residence, and the place where such trade or business will be carried on. A failure to register as herein required subjects the person so failing to a penalty of $50. (Section 26, Act of Oct. 1, 1890).

RETAIL DEALERS IN LEAF TOBACCO.

DEFINITION.

Section 35 of the act approved August 5, 1909, provides that every person shall be regarded as a retail dealer in leaf tobacco whose business it is to sell leaf tobacco in quantities less than the original hogshead, case, or bale, or who shall sell directly to consumers or to persons other than dealers in leaf tobacco, or to manufacturers of tobacco, snuff, or cigars, or to persons who purchase in original packages for export.

RETURN FOR REGISTRY.

Every person engaging in the business of a retail dealer in leaf tobacco shall, upon commencing business, and annually on the first day of July of each year, make return for registry on Form 277 to the collector of the district, giving his name or style, place of residence, trade or business, and the place where such trade or business will be carried on, and a failure to register as herein required subjects such person to apenalty of $50.

MANUFACTURED TOBACCO.

All tobacco, in the fibre or natural leaf, twisted by hand or by machinery, or otherwise reduced into a condition to be consumed, and all cut or granulated tobacco of every description, fine cut, cavendish, plug, or twist tobacco, all fine-cut shorts, the refuse of fine-cut chewing tobacco, refuse scraps, clippings, cutting, sweepings of tobacco, and other by-products of tobacco and cigar factories are regarded as manufactured tobacco and subject to the internal revenue tax when produced within, or imported, and sold, or offered for sale, or kept for sale and consumption in the United States and their Territories, in accordance with the provisions of section 3448 of the Revised Statutes, but which statute is not held

to include the governments of Porto Rico or the Philippine Islands as now established.

The internal-revenue taxes imposed in the United States upon tobacco and its manufactures will be levied and collected, although such domestic products are intended for ultimate sale or consumption in Porto Rico or the Philippine Islands.

CONTENTS OF STATUTORY PACKAGES.

Under the provisions of sections 3362, 3392, and 3394 of the Revised Statutes, as amended by the act of August 5, 1909, manufacturers are required to put up their tobacco, snuff, cigars, and cigarettes in certain packages and in no other manner.

In view of these requirements, it is decided that statutory packages or tobacco, snuff, cigars, or cigarettes, shall contain only the tax-paid article in the quantity or number and kind indicated by the stamp or stamps affixed to the package, except advertising matter of inappreciable weight, such as small advertising cards, coupons, certificates, paper bands, circulars, trade-mark tin tags, and trade-mark strips which do not materially increase the size of the package, and which are intended as an advertisement of the business of the manufacturer and concern the manufacture and sale of his product and no other business; and such advertising matter will not be prohibited although intended to be returned to the manufacturer or to some person designated by him on the coupon and exchange for other articles, provided the distribution of the prize article does not depend upon the event of a lottery.

It is required that the manufacturer's registered factory number, district, and State shall appear upon each card, coupon, or certificate which may be placed within the statutory package.

THE COUPON CLAUSE.

Following is the law which regulates the placing of coupons in authorized packages of tobacco, snuff, cigars and cigarettes:

"No packages of manufactured tobacco, snuff, cigars or cigarettes, prescribed by law, shall be permitted to have packed in, or attached to, or connected with them, nor affixed to, branded, stamped, marked, written or printed upon them, any paper, certificate or instrument purporting to be or represent a ticket, chance, share or interest in, or dependent upon, the event of a lottery, nor any indecent or immoral picture, representation, print, or words; and any violation of the provisions of this paragraph shall subject the offender to the penalties and punishments provided by section 3456 of the Revised Statutes."

INCORPORATED COMPANIES.

Corporations carrying on business as manufacturers of tobacco, snuff, cigars, or cigarettes under statutes which require returns to be signed by the manufacturer and verified by his own oath will be required to have their returns made by an officer of the corporation who is authorized so to do either by the charter, by the articles of incorporation, or by by-laws regularly adopted.

The delegation of the authority to make sworn returns to an attorney in fact is not permissible unless the person holding such power of attorney is duly elected and authorized officer of the corporation and signs as such instead of under his authority granted by power of attorney.

Under the law relating to corporations, certain officers are empowered to bind the corporation in various ways. The sections of the statute relating to the returns of tobacco, snuff, cigar, and cigarette manufacturers contemplate that these returns be made by some person who has the power under the authority resting in an officer of the corporation to bind that corporation.

The duty imposed by the law upon the manufacturer of verifying returns is a duty which cannot be delegated by power of attorney, but must be performed by one who is himself responsible and who can make his corporation responsible by reason of the positon he holds in that corporation.

STAMP TAX ON TOBACCO MANUFACTURERS.

COMMISSIONER TO PROVIDE STAMPS.

The Commissioner of Internal Revenue, under the provisions of sections 3369 and 3395 of the Revised Statutes, is required to supply suitable stamps for the payment of the tax on tobacco, snuff, cigars, and cigarettes, and to furnish same to collectors of internal revenue to be sold only to qualified manufacturers of tobacco and cigars in their respective districts, and to owners or consignees or importers of tobacco, snuff, cigars, or cigarettes, upon requisition of the proper custom-house officer having custody of such imported manufactures.

DOMESTIC MANUFACTURES.

All persons who have qualified as manufacturers of tobacco, or as manufacturers of cigars under the internal-revenue laws, will be required to purchase stamps from collectors of internal revenue in their respective districts, for the payment of tax on their tobacco manufacturers before revomal from the place of manufacture; such stamps to be affixed and cancelled in manner hereinafter prescribed.

MANUFACTURERS OF TOBACCO.

DEFINITION.

Section 69 of the act approved August 28, 1894, provides that—

Every person whose business it is to manufacture tobacco

or snuff for himself, or who employs others to manufacture tobacco or snuff, whether such manufacture be by cutting, pressing, grinding, crushing, or rubbing of any raw or leaf tobacco, or otherwise preparing raw or leaf tobacco, or manufactured or partially manufactured tobacco or snuff, or the putting up for use or consumption or scraps, waste, clippings, stems, or deposites of tobacco resulting from any process of handling tobacco, or by the working or preparation of leaf tobacco, tobacco stems, scraps, clippings, or waste, by sifting, twisting, screening, or any other process, shall be regarded as a manufacturer of tobacco.

Every person shall also be regarded as a manufacturer of tobacco whose business it is to sell leaf tobacco in quantities less than a hogshead, case, or bale; or who sells directly to consumers, or to persons other than duly registered dealers in leaf tobacco, or duly registered manufacturers of tobacco, snuff, or cigars, or to persons who purchase in packages for export; and all tobacco so sold by such persons shall be regarded as manufactured tobacco, and such manufactured tobacco shall be put up and prepared by such manufacturer in such packages only as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall prescribe: *Provided,* That farmers and growers of tobacco who sell leaf tobacco of their own growth and raising shall not be regarded as manufacturers of tobacco.

RETURN FOR REGISTRY.

Every person engaging in business as a manufacturer of tobacco shall, on commencing business, and annually on the 1st day of July of each year, register with the collector of the district on Form 277 his name or style, place of residence, trade, or business, and the place where such trade or business is to be carried on. Upon receipt of such Form 277, properly executed, the collector will issue to the manufacturer a certificate of registry on Form 284, which must at all times be posted and conspicuously displayed in his place of business.

MANUFACTURER'S STATEMENT.

Every person before commencing the manufacturer of tobacco or snuff will be required to file with the collector of the district where the manufacture is to be carried on, and without previous demand therefor, a statement on Form 36, in duplicate and subscribed under oath, accurately setting forth the place where the manufacture is to be carried on, the number of cutting machines, presses, snuff mills, hand mills, and other machines, the kind, class, or quality of the product proposed to be manufactured; and if manufactured for another person under a special contract, the name, residence, and business of such person, and as provided by section 3355 of the Revised Statutes.

MANUFACTURER'S BOND.

Every manufacturer of tobacco or snuff shall, before com-

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mencing business, give a bond on Form 40 in a penal sum of not less than $2,000 nor more than $20,000, to be fixed by the collector according to the quanantum of business to be done by the manufacturer, with right of appeal to the Commissioner with respect to the amount of bond required.

COLLECTOR'S CERTIFICATE.

The collector, upon receiving a statement and approving the bond of a manufacturer of tobacco, will issue to him a certificate on Form 41, which shall set forth the kind and number of machines, presses snuff mills, hondmills, or other mills or machines used, or intended to be used, at the factory; which certificate must be posted by the manufacturer in a conspicuous place within his manufactory.

SUBDIVISION PACKAGES PROHIBITED.

In view of the fact that internal-revenue stamps for manufactured tobacco and snuff are now supplied in denominations of one-half an ounce, three-quarters of an ounce, and further packages with a difference between each package and the on next smaller of one-fourth an ounce, up to and including four ounces, manufacturers will not be permitted to pack plug, smoking, or fine-cut chewing tobacco, or snuff in unstamped subdivisions or parcels for repacking in larger packages.

MODE OF AFFIXING TOBACCO AND SNUFF STAMPS.

1. Manufacturers of tobacco and snuff, or the owners or consignees of imported tobacco and snuff, shall affix the stamp over or upon one corner or angle of each box or caddy of cavendish, plug, or twist tobacco at equal distance from each end and there shall be made in each such package, for the reception, and protection of the stamp, a groove or indenation at least one-eight of an inch in depth. If two stamps are used upon the same box they should be placed on opposite sides of the package and protected in the manner before stated.

2. All strip stamps, and other small stamps intended to be used for payment of tax on packages of smoking tobacco, fine-cut chewing tobacco, and small packages of cut or granulated tobacco, and snuff and snuff flour intended for consumption, shall be firmly attached *on the outside* of every such package, and in such manner as to effectually seal the same and render it impossible to remove the contents of the package without breaking the stamp.

CAUTION NOTICE LABEL.

Section 3364 of the Revised Statutes, as amended, provides that—

Every manufacturer of tobacco or snuff shall, in addition to all other requirements of this title relating to tobacco, print on each package, or securely affix, by pasting, on each package containing tobacco or snuff manufactured by or for him, a label on which shall be printed * * * the number of the manufactory, the district and State in which it is situated, and these words:

"NOTICE.—The manufacturer of this tobacco has complied with all requirements of law. Every person is cautioned, under the penalties of law, not to use this package for tobacco again."

The caution notice required by this section shall be printed upon a plain slip of paper, to be affixed to wooden packages, or may be printed directly upon said packages, and those made from paper, pasteboard, or enameled tin, but such label shall be separate and independent of any other printed matter, and occupy a space not less than two inches wide and three inches long, and shall be substantially in the following form:

Factory No. ——, ——— District, State of ———.

NOTICE.—The manufacturer of this tobacco has complied with all the requirements of law. Every person is cautioned, under the penalties of law, not to use this package for tobacco again.

The manufacturer may adopt a small label to be affixed to, or printed directly upon, the packages containing sixteen ounces or less of tobacco or snuff, but such label must be distinct and legible.

MANUFACTURERS OF CIGARS.

DEFINITION.

Subsection 10 of section 3244 of the Revised Statutes of the United States provides as follows:

Tenth. * * * Every person whose business it is to make or manufacture cigars for himself, or who employs others to make or manufacture cigars, shall be regarded as a manufacturer of cigars.

Cigarettes and cheroots shall be held to be cigars under the meaning of this chapter.

MANUFACTURERS TO REGISTER.

Every person whose business it is to make or manufacture cigars for himself, or who employs others to make or manufacture cigars, shall, on commencing business and annually thereafter on the 1st day of July of each year, register with the collector of the district, on Form 277, his name or style, place of residence, trade or business, and the place where such trade or business is to be carried on. Upon receipt of such Form 277, properly executed, the collector will issue to the manufacturer a certificate of registry on Form No. 283, which must at all times be posted and conspicuously displayed in his place of business.

CIGAR MANUFACTURER'S BOND.

Every person who is required to register on Form 277 and file a statement on Form 36½ as a manufacturer of cigars or cigarettes, before commencing such manufacture shall execute a bond in the penal sum of not less than $100, to be approved by the collector; and such bond shall be executed on Form 71, and the sum of said bond may be increased

from time to time and additional sureties required, at the discretion of the collector or under the instructions of the Commissioner, and such bond shall, in all respects, conform as to its conditions to the provisions of section 3387 of the Revised Statutes as amended by section 35 of the act approved October 1, 1890.

CIGARS AND CIGARETTES DEFINED AND CLASSIFIED.

Section 3394, Revised Statutes, as amended by section 33 of the act of August 5, 1909, provides that—

All rolls of tobacco, or any substitute therefor, wrapped with tobacco, shall be classed as cigars, and all rolls of tobacco, or any substitute therefor, wrapped in paper or any substance other than tobacco, shall be classed as cigarettes.

And the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall provide dies and adhesive stamps for cigars weighing not more than three pounds per thousand: *Provided*, That such stamps shall be in denominations of five, eight, ten, fifteen, twenty, fifty, and one hundred, and the laws and regulations governing the packing and removal for sale of cigarettes, and the affixing and canceling of stamps on the packages thereof, shall apply to cigars weighing not more than three pounds per thousand.

RATES OF TAX IMPOSED ON CIGARS AND CIGARETTES.

Section 33 of the act of August 5, 1909 provides that section 3394 of the Revised Statutes of the United States, as amended, be, and the same is hereby, amended so as to read as follows:

SECTION 3394. Upon cigars and cigarettes which shall be manufactured and sold, or removed for consumption or sale, there shall be assessed and colected the following taxes, to be paid by the manufacturer thereof: On cigars of all descriptions made of tobacco or any substitute therefor and weighing more than three pounds per thousand, three dollars per thousand; on cigars, made of tobacco, or any substitute therefor, and weighing not more than three pounds per thousand, seventy-five cents per thousand; on cigarettes, made of tobacco, or any substitute therefor, and weighing more than three pounds per thousand, three dollars and sixty cents per thousand; on cigarettes, made of tobacco, or any substitute therefor, and weighing not more than three pounds per thousand, one dollar and twenty-five cents per thousand.

MODE OF AFFIXING STAMPS.

Strip stamps, intended to be used in payment of tax on domestic or imported cigars, weighing more than 3 pounds per thousand, shall be attached *on the outside* of the boxes, and in such manner as to seal the same and prevent removal of the cigars without breaking the stamp.

2. The strip stamps of the denominations of 50 and 100

intended to be used in payment of tax on cigars weighing not more than three pounds per thousand, or on cigarettes, shall also be attached on the outside of the boxes, and in such manner as to effectually seal the same.

3. The smaller stamps intended to be used in payment of tax on small cigars, weighing not more than three pounds per thousand, and on cigarettes, put up in boxes containing five, eight, ten, fifteen or twenty cigars or cigarettes, shall be affixed in such manner as to seal the package; and when not so affixed the registered factory number district, and State, and date of use, shall be plainly printed on the stamp.

BRANDING CIGAR BOXES.

Every box containing a statutory number of cigars intended for sale or consumption in the United States shall have stamped, indented, burned, or impressed therein, in a legible and durable manner, the number of the cigars contained therein, the number of the manufactory, and the number of the district and State before the cigars are removed from the place of manufacture.

CAUTION-NOTICE LABEL.

The caution notice required by section 3393 of the Revised Statutes to be affixed by the manufacturer to each box containing cigars or cigarettes manufactured by or for him shall be printed upon plain paper, separate and independent of any other printed matter, or directly upon boxes made from wood or paper, pasteboard, enameled tin, or other boxes approved by the commissioner are substitutes for wooden boxes under section 3362 of the Revised Statutes; and such labels shall be in form following, to wit:

Factory No. ——, ——— district, State of ———.

NOTICE.—The manufacturer of the cigars herein contained has complied with all the requirements of law. Every person is cautioned not to use either this box for cigars again, or the stamp thereon again, nor to remove the contents of this box without destroying said stamp, under the penalties provided by law in such cases.

The word "cigarettes" will be substituted in the above, as the case may require.

This label shall occupy a space not less than one and one-half inches wide and three inches long, and such label must be clear and legible, and disconnected entirely from any other label, trade-mark name, or brand of goods, and advertising matter. Compliance with the above dimensions of the caution-notice label will be waived in the case of packages of small cigars and cigarettes.

BRANDING AND LABELING PACKAGES OF CIGARETTES AND SMALL CIGARS.

The omission of the label or brand on statutory packages containing five, eight, ten, fifteen, twenty, fifty or 100 small cigars or cigarettes will not be permitted from and after July 1, 1910.

Every statutory package of small cigars or cigarettes of domestic manufacture must have affixed to, or imprinted upon it, the caution notice required by section 3393 of the Revised Statutes and the brand required by section 3397 of the Revised Statutes.

SALE OF TOBACCO SCRAPS, CUTTINGS, AND CLIPPINGS.

Manufacturers of cigars who desire to prepare and put up their tobacco scraps, cuttings, and clippings for consumption or sale as smoking tobacco will be required to qualify as manufacturers of tobacco in premises separate and apart from their cigar factories. After such qualification they may transfer from their cigar factories to their premises as manufacturers of tobacco, under permit to be obtained from the collector, such scraps, cutting, and clippings, debiting and crediting themselves, respectively, on their books and reports, so as to preserve a proper record of such transfers.

The material thus transferred must be packed as smoking tobacco in packages containing one-half, three-fourths, one, one and one-fourth, one and one-half, one and three fourths, two, two and one-fourth, two and one-half, two and three-fourths, three, three and one-fourth, three and one-half, three and three-fourths, four, six, seven, eight, ten, twelve, fourteen, or sixteen ounces, respectively, and be properly labeled and stamped before removal from the tobacco factory premises.

IMPORTED CIGAR AND TOBACCO MANUFACTURES.

IMPORTED TOBACCO AND SNUFF.

Section 3377 of the Revised Statutes, as amended by the act of March 1, 1879, provides that—

All manufactured tobacco and snuff (not including cigars) imported from foreign countries, shall, in addition to the import duties imposed on the same, pay the tax imposed by law on like kinds of tobacco and snuff manufactured in the United States, and have the same stamps, respectively, affixed. Such stamps shall be affixed and canceled on all such articles so imported by the owner or importer thereof, while they are in the custody of the proper custom-house officers, and such articles shall not pass out of the custody of said officers until the stamps have been affixed and canceled. Such tobacco and snuff shall be put up in packages, as prescribed by law for like articles manufactured in the United States, before the stamps are affixed; and the owner or importer shall be liable to all the penal provisions prescribed for

manufactures of tobacco and snuff manufactured in the United States.

IMPORTED CIGARS AND CIGARETTES.

Section 3402 of the Revised Statutes provides that—

All cigars imported from foreign countries shall pay, in addition to the import duties imposed thereon, the tax prescribed by law for cigars manufactured in the United States, and shall have the same stamps affixed. The stamps shall be affixed and canceled by the owner or importer of the cigars while they are in the custody of the proper custom-house officers, and the cigars shall not pass out of the custody of such officers until the stamps have been so affixed and canceled, but shall be put up in boxes containing quantities as prescribed in this chapter for cigars manufactured in the United States before the stamps are affixed. And the owner or importer of such cigars shall be liable to all the penal provisions of this title prescribed for manufacturers of cigars manufactured in the United States.

Section 3392 of the Revised Statutes provides that—

All cigarettes imported from a foreign country shall be packed, stamped, and the stamps canceled the same as required for cigarettes of domestic manufacture, in addition to the import stamp indicating inspection of the custom- before they are withdrawn therefrom.

THE "FREE SMOKERS" LAW.

The question of the liability to tax of cigars known as "smokers" furnished to, or taken by, employees of manufacturers of cigars was decided by placing on the statute books the act approved February 10, 1913, amending section 3392 of the Revised Statutes as follows:

That each employee of a manufacturer of cigars shall be permitted to use, for personal consumption and for experimental purposes, not to exceed twenty-one cigars per week, without the manufacturer of cigars being required to pack the same in boxes, or to stamp or pay any internal revenue tax thereon, such exemption to be allowed under such rules and regulations as the Secretary of the Treasury may prescribe.

Regulations have been issued in pursuance of this law and printed as Treasury Decision No. 1875.

CHAPTER XIX

THE MANUFACTURE OF CLEAR HAVANA CIGARS IN BOND

Method by Which Factory Operators can Produce Goods Under a Government Guarantee—The Bonded Regulations

As the law providing for the manufacturing in bond of cigars for domestic consumption is comparatively a new institution, its exact intent, purpose and requirements are frequently misunderstood.

The law does not compel any manufacturer to bond his factory, nor does it compel any member of the trade to depart from the methods that have been in vogue for many years.

For a long time, particularly since the Pure Food and Drug Law was enacted, there was a feeling in some manufacturing circles that there ought to be a law against the use of the term "Clear Havana Cigars" in connection with cigars that were not made exclusively of Havana tobacco. But it was found that Congress would not entertain legislation of that character. The position of the Government was just this:

"It is within our province to forbid a mixture of coffee and chicory, for instance, to be sold as coffee, and to forbid a mixture of sugar and sand to be sold as sugar; but it is not within our province to assume responsibility over the particular blend of coffee sold or the particular grades of sugar sold by any merchant or manufacture. If you want legislation forbidding a manufacturer to substitute cabbage leaves or alfalfa for tobacco we will give it to you, but we cannot attempt to maintain a dictatorship over the different kinds of tobacco which manufacturers may use in their cigars. One kind of

tobacco is no more injurious to the public health than another kind of tobacco. It is a matter of individual preference or taste, and a matter of confidence between the individual manufacturer and the individual consumer."

Of course, the legislature did not say this in exactly these words, but such was its attitude in the matter.

Then the manufacturers interested in the subject went to work to find some other way in which the desired end could be accomplished. The result was that in 1913 they succeeded in having incorporated in that part of the tariff laws treating on the subject of manufacturing in bond the following:

"Provided, that cigars manufactured *in whole* of tobacco *imported from any one country,* made and manufactured in such bonded manufacturing warehouses may be withdrawn for home consumption upon the payment of the duties on such tobacco in its condition as imported, under such regulations as the Secretary of the Treasury may prescribe, and the payment of the Internal Revenue taxes accruing on such cigars in their condition as withdrawn, and the boxes or packages containing such cigars *shall be stamped to indicate their character, origin of tobacco from which made, and place manufactured.*"

It will be seen that under this provision the manufacturer can make any kind of cigars he chooses in bond. Or, he can make any kind of cigars he chooses *not* in bond.

But he cannot withdraw cigars made in bond and get the Government bonded stamp unless his cigars are "manufactured in whole of tobacco imported from any one country."

Of course, no one wants to manufacture cigars "manufactured in whole of tobacco imported from any one country" unless that country is Cuba; so that the law, in effect, requires cigars manufactured in bond to be made entirely of Havana tobacco.

In other words clear Havana cigars may not

necessarily be manufactured in bond, but cigars manufactured in bond must, of necessity, be clear Havana.

The restrictions now in effect, however, go even further than this, for in that part of the bonded clause which says the goods may be withdrawn "under such regulations as the Secretary of the Treasury may prescribe," rulings have been made to the effect that there shall be designated, on the Government bonded stamp, the particular kind or method of manufacturing used.

This law and these regulations are now in operation, but there is nothing in them which makes compulsory any departure from the old and established methods of operation.

No manufacturer of Clear Havana cigars has to convert his factory into a bonded manufacturing warehouse unless he chooses so to do.

THE TREASURY DEPARTMENT RULINGS.

Following is the Treasury Department decision in which instructions were given to internal revenue officials and through them to many cigar manufacturers and others interested as to the meaning, scope, effect and operation of the law:

"CIGARS MADE IN BONDED MANUFACTURING WAREHOUSES.

"Withdrawal of cigars made in bonded manufacturing warehouses under the provisions of Section V, Paragraph M, of the tariff act of October 3, 1913.

"Treasury Department,
"October 10, 1913.

"To Collectors of Customs and Others Concerned:

"Section V, Paragraph M, of the tariff act of October 3, 1913, provides in part 'That cigars manufactured in whole of tobacco imported from any one country, made and manufactured in such bonded manufacturing warehouses, may be withdrawn for home consumption upon the payment of the duties on such tobacco in its condition as imported, under such regulations as

the Secretary of the Treasury may prescribe, and the payment of the internal revenue tax accruing on such cigars in their condition as withdrawn, and the boxes or packages containing such cigars shall be stamped to indicate their character, origin of tobacco from which made and place of manufacture.'

"The provisions of Articles 506 to 513, inclusive, Articles 514 to 524, inclusive, only so far as applicable, and Articles 525 to 538, inclusive, of the customs regulations of 1908, are hereby extended to the bonding and operation of warehouses for the manufacture of cigars.

"Only tobacco imported from one country may be taken into premises bonded for the manufacture of cigars, for use in making cigars. Cigars manufactured from such tobacco may be withdrawn for consumption in the United States upon the filing of an entry in the form provided by Article 257 of the customs regulations of 1908 for the withdrawal of merchandise from bond for consumption, such form of entry to be modified to correspond to the facts.

"The entry must specify in detail the quantity of tobacco from which the cigars were made and duty shall be paid on the tobacco used, in its condition as imported, at the rates provided in the appropriate paragraphs of the tariff act of October 3, 1913.

"In order to comply with the requirement that duty shall be paid on the tobacco used, in its condition as imported, collectors will require the weighing and examination and proper records to be kept of all tobacco taken directly into the bonded manufacturing warehouse from the import vessel. In the case of tobacco transferred from bonded warehouse into a bonded manufacturing warehouse from which to make cigars, the records of the examination and weights at the time of the importation and entry of such tobacco will be used in arriving at the correct amount of duties due on the tobacco.

"The collector will require, before the removal of the cigars from the bonded premises, under a withdrawal for consumption, that internal revenue stamps shall be affixed to the boxes containing the cigars and

that the boxes shall be stamped to indicate the character of the cigars, the origin of the tobacco from which made and the place of manufacture.

"Signed, C. S. HAMLIN,
"Assistant Secretary."

Articles 506-513 to which the above refers provide that the manufacturing warehouse must be in a separate building located at a customs port; that application to establish such a warehouse must be made to the collector of customs, the building must be approved by fire underwriters; that bond must be filed and sent to the collector of internal revenue for the district in which the manufacturing warehouse is to be located for his approval; that the warehouse shall be in the custody of the customs authorities and part of it shall be used for storage, and that access to the building shall be denied the generality of people. Articles 514 to 524, permit boxes, labels, bands, etc., to be taken into the bonded factory-warehouse without the payment of tax; the transfer of the manufactured cigars from one warehouse to another without the payment of duty, in original packages. They also provide for appraisement, transfer from vessel and re-warehousing. Forms are prescribed for application to transfer, withdrawal for transfer, ownership bond, transfer order and permit. Under the old regulations, which are to be applied as far as practicable, duty free materials other than tobacco for use in making cigars may be taken into the factories. Other features of the articles referred to cover the exportation of the manufactured product, proof of export being required; also lading, transportation, temporary deposit in warehouse, transfer bond, renewal of bond, discontinuance, etc.

TREASURY DEPARTMENT,

Office Commissioner of Internal Revenue.

December 18, 1913.

"To Collectors of Internal Revenue:

"In view of the number of inquiries made to this office, Collectors and Deputy Collectors relative to

the manufacture of cigars in bond under the provisions of the Tariff Act of October 3, 1913, that part of Section IV, Paragraph M of said act relating thereto is here quoted:

" 'That cigars manufactured in whole of tobacco imported from any one country, made and manufactured in such bonded manufacturing warehouses, may be withdrawn for home consumption upon the payment of the duties on such tobacco in its condition as imported under such regulations as the Secretary of the Treasury may prescribe, and the payment of the internal revenue tax accruing on such cigars in their condition as withdrawn, and the boxes or packages containing such cigars shall be stamped to indicate their character, origin of tobacco from which made, and place of manufacture.'

"The regulations prescribed in this statute, governing the manufacture and withdrawal for home consumption of cigars made in bonded manufacturing warehouses so far issued will be found in Customs Decision No. 33783, dated October 10, 1913. The Internal Revenue Service, having been given no jurisdiction in the manufacture of such cigars, all persons making inquiries in regard to same should be referred to the nearest Collector of Customs.

"Premises now operated as cigar factories under the Internal Revenue Laws, can be opened as bonded manufacturing warehouses only after making proper disposition of all material, cigars and stamps on hand and closing their accounts as manufacturers under the Internal Revenue Laws; that is all tobacco and cigars shall have been removed leaving only the manufacturing equipment on the premises.

"Customs Regulations made applicable to the manufacture of cigars in bonded manufacturing warehouses require bonds to be given in triplicate and approved by the Collector of Internal Revenue. Such approval should be given as a matter of course. Collectors of Internal Revenue may sug-

gest that the penalty of a bond be increased, if it is deemed insufficient.

"Cigars made in bonded manufacturing warehouses, when withdrawn for home consumption, will be treated similarly to cigars imported from a foreign country. Sales of stamps to be used in bonded manufacturing warehouses in stamping boxes of cigars for withdrawal for consumption in the United States, will be made upon the requisition of the Collector of Customs in the same manner as stamps are sold to owners or consignees of cigars imported from a foreign country, as provided in Regulations No. 8, revised July 1, 1910, Page 62, under the head of 'Purchase of Stamps.'

"Extra copies of this decision will be furnished collectors upon requisition to be supplied to persons making inquiry on the subject.

(Signed) ROBT. WILLIAMS, JR.,
"Acting Commissioner."

HOW TO CANCEL STAMP ON BONDED CIGARS.

Assistant Secretary of the Treasury Malburn rendered a decision relative to the cancellation of stamps on bonded cigars. The decision was in a letter to the collector of customs at Jacksonville, Fla., which is as follows:

"Sir:—The Department duly received your letter of the 4th ultimo, in regard to the cancellation of customs and internal revenue stamps affixed to boxes containing cigars made in bonded manufacturing warehouse, and the stamping or branding the boxes or affixing thereon a printed label containing a caution notice that the manufacturer of the cigars has complied with the requirements of the law, and warning persons not to use the box or stamps again, and not to remove the contents of the box without destroying the stamps.

"Cancellation of both the customs and internal revenue stamps, which must be legible in every instance, may be made by means of a rubber stamp or by perforation showing the name of the manu-

facturer, the place where the factory is located, and the date.

"To the boxes containing the cigars there may be affixed a printed label bearing a caution notice as follows:

"'Notice—The manufacturer of the cigars herein contained has complied with all the requirements of law. Every person is cautioned not to use either this box for cigars again or the stamp thereon again, nor to remove the contents of this box without destroying said stamp, under the penalties provided by law in such cases.'

"WM. P. MALBURN,
"Assistant Secretary."

REMOVAL OF SCRAPS FROM BONDED FACTORIES.

The question having arisen as to the withdrawal of scraps, etc., from customs bonded factories, Acting Secretary of the Treasury Hamlin issued instructions to Collectors of Customs to permit such withdrawal and transfer of scraps, cuttings and clippings to other factories operating under the internal revenue laws. Such withdrawal and transfer cannot be made until after duty is paid at the rates prescribed under the law for imported tobacco, wrapper or filler, as part of the tobacco entering into the make-up of cigars produced in the customs bonded factory. Following is the main body of the decision and instructions:

"Proprietors of such premises are hereby permitted to withdraw therefrom under these regulations scraps, cuttings and clippings produced in the premises for transfer to cigar or tobacco manufacturers operating under the internal revenue laws.

"In order that a check may be obtained on the quantities of tobacco transferred to factories operating under the internal revenue laws, proprietors of bonded manufacturing warehouses engaged in the manufacture of cigars for withdrawal for consumption in the United States, will be required to keep a record of each transfer of scraps, cuttings or clippings."

Forms are prescribed for use under the above pro-

visions, the forms being application and permit for transfer of scraps, cuttings and clippings, and certificate of such transfer.

PART V

STATISTICAL

CHAPTER XX

THE MAGNITUDE OF THE TRADE TOLD BY COMPARISONS

The Cigars We Smoke in One Year Would Girdle the Earth Twenty-two Times—Many Other Astounding Comparisons

Ordinarily figures that run into the millions are not easily comprehended excepting in a comparative sense. Here will be found a few comparisons that show graphically the size, importance and value of the tobacco industry in this country. The yearly production has increased since these statistics were worked out, so it may be said that the comparisons given are conservative rather than exaggerated.

SOME INTERESTING COMPARISONS.

The internal revenue from tobacco for one year would build fourteen battleships of the first-class; or it would pay the salary of the President of the United States for nearly a thousand years. It would pay the interest on the public debt for three years, and there would be enough left over to add a dollar to the account of every savings bank depositor in the United States.

CIGARS.

The money spent by smokers for cigars only, *not counting* cigarettes, smoking and chewing tobacco and snuff, would more than pay for the building of the Panama Canal, besides taking care of the $50,000,000 paid to the new French Canal Co., and the Republic of Panama for property and franchises. And in addition to this it would cover the cost of fortifying the Canal.

Or it would build a fleet of thirty-five trans-Atlantic liners, each exactly like the lost Titanic, coal them,

provision them and keep them running between New York and Liverpool with a full complement of passengers and crew, almost indefinitely.

There are 21,718,448 cigars burned up in the United States every twenty-four hours; and 904,935 every hour; and 15,082 every minute; and 251 *every second.*

The annual *per capita* consumption of cigars in the United States, counting men women and children, is eighty-six cigars.

If all the cigars smoked in the United States in one year were put together, end to end, they would girdle the earth, at its largest circumference, twenty-two times.

CIGARETTES.

As to the cigarettes, there are 23,736,190 of them consumed in the United States every day; and 989,007 every hour; and 16,482 every minute. With every tick of your watch, night and day, the year around, the butts of 275 smoked-up cigarettes are dropped into the ash tray.

Cigarette smokers in the United States, not counting those who roll their own smokes from tobacco, spend $60,645,966.36 for the little paper-covered rolls.

If all the cigarettes smoked in the United States in one year were placed end to end and stood up vertically they would make a slender shaft rising 512,766 miles into the heavens.

If strung on a wire they would make a cable that would reach from the earth to the moon and back again, with enough left over to circle one-and-a-half times around the globe.

TOBACCO AND SNUFF.

There are 533,357,206 pounds, or 266,678 tons, of tobacco smoked, chewed and snuffed in this country every year, not counting imported manufactures.

If this quantity of tobacco could be placed on one side of a huge balancing scale it would take the combined weight of four vast armies, each army consisting

of 1,000,000 men, to pull down the other side of the scale.

The weight of the tobacco consumed in the United States in a year is equal to the weight of the entire and combined population of Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, George, Florida, Tennessee and Alabama.

CHAPTER XXI

EXACT STATISTICS OF THE TRADE FROM OFFICIAL RECORDS

Annual Production in America of the Weed in Its Various Forms—Number of Factories and States that Lead—Imports and Exports

Naturally tobacco statistics change from year to year. In selecting the tables for this chapter care has been taken to give the figures during periods which may be regarded as fairly representing the average; in other words, they are the statistics of periods during which the condition of business was fairly normal.

A YEAR'S PRODUCTION OF THE MANUFACTURES OF TOBACCO.

The following tables show the quantities of cigars, cigarettes, snuff and tobacco manufactured in the United States during the fiscal years ended June 30, 1913 and 1914:

Product	Fiscal year ended June 30— 1913	1914
Cigars weighing more than 3 pounds per thousand .....No...	7,669,937,543	7,670,832,230
Cigars weighing not more than 3 pounds per thousand .....No..	1,033,778,160	1,036,793,000
Cigarettes weighing more than 3 pounds per thousand .....No..	18,124,311	17,418,880
Cigarettes weighing not more than 3 pounds per thousand.....No..	14,276,771,160	16,409,667,136
Snuff .....lbs..	33,209,468	32,766,741
Tobacco, chewing and smoking..lbs..	404,362,620	412,505,213

PRODUCTION IN 1912 AND 1913.

The objects of internal taxation producing the largest amounts of revenue during the fiscal year ended June 30, 1913, were: Distilled spirits, $157,542,061; fermented liquors, $65,245,544; *manufactured cigars, tobacco, etc.,* $76,789,424.

The quantity of cigars, cigarettes, manufactured tobacco and snuff upon which the internal revenue tax was paid during the fiscal year ended June 30, 1913, with comparative figures of 1912 were as follows:

	1912	1913
Cigars weighing more than 3 pounds per thousand .....No..	7,256,390,303	7,699,037,543
Cigars weighing not more than 3 pounds per thousand.....No..	1,093,728,850	1,033,778,160
Cigarettes weighing more than 3 pounds per thousand .....No..	17,911,819	18,124,311
Cigarettes weighing not more than 3 pounds per thousand .....No..	11,221,624,984	14,276,771,160
Snuff .....lbs..	30,079,482	33,209,468
Tobacco, chewing and smoking..do..	393,785,146	404,362,620

The above statement of withdrawals includes, on account of Porto Rican products, 164,871,400 cigars, at $3 per thousand; 194,500 cigarettes, at $3.60 per thousand; and 6,663,160 cigarettes, at $1.25 per thousand; and on account of Philippine products as follows: 100,381,230 cigars, at $3 per thousand; 200 cigarettes, at $3.60 per thousand; 14,358,584 cigarettes, at $1.25 per thousand; and 100 pounds manufactured tobacco, at eight cents per pound.

LEADING STATES AND DISTRICTS.

The four States producing the greatest number of cigars weighing more than three pounds per thousand and the production of each during the calendar year 1912 were as follows:

Pennsylvania	1,962,460,574
New York	1,150,684,740
Ohio	655,376,164
New Jersey	499,343,142

The two districts showing the largest production of cigars are the ninth Pennsylvania, 848,493,441, and the first Pennsylvania, 748,555,111.

The States showing the greatest production of little cigars (weighing not more than three pounds per thousand) are:

Maryland	521,646,210
Pennsylvania	244,610,690
Virginia	132,660,630

The greatest production by districts is as follows:

Maryland	521,646,210
First Pennsylvania	243,734,840
Sixth Virginia	128,312,980
Fifth New Jersey	76,427,940

The States of New York, Virginia, North Carolina, Louisiana, California, and Pennsylvania, in the order named, showed the greatest production of cigarettes weighing not more than three pounds per thousand:

New York	7,085,728,676
Virginia	2,586,596,180
North Carolina	1,547,268,500
Louisiana	677,391,115
California	161,224,510
Pennsylvania	109,479,475

The three districts showing the greatest production of little cigarettes are the second Virginia, which produced 2,578,487,780, the first New York, which produced 2,491,654,128, and the third New York, which produced 2,332,179,923.

New York produced the greatest number of large cigarettes, showing a production of 14,282,640, of which number 10,599,130 were manufactured in the third district and 3,588,760 in the second district.

The States of North Carolina, Missouri, Ohio, Kentucky, New Jersey, and Michigan, in the order named, are the States reporting the largest manufacture of both chewing and smoking tobacco, the quantity manufactured being as follows:

North Carolina	96,546,019
Missouri	73,216,606
Ohio	41,895,848
Kentucky	35,646,610
New Jersey	35,114,631
Michigan	25,578,282

The districts producing the largest quantity are:

First Missouri	73,086,059
Fifth North Carolina	61,835,494
Fifth New Jersey	35,098,429
Fourth North Carolina	34,710,525
First Ohio	32,729,121

NUMBER OF FACTORIES OPERATED.

Number of registered manufacturers of tobacco	2,803
Number who registered as manufacturers for the purpose of buying and selling refuse, scraps, cuttings, and clippings	244
Number who registered as manufacturers for the purpose of disposing of old stock of manufactured tobacco	21
Number who produced perique tobacco	54
Number manufacturing plug tobacco exclusively	21
Number manufacturing twist tobacco exclusively	21
Number manufacturing fine-cut tobacco exclusively	2
Number manufacturing smoking tobacco exclusively	2,270
Number manufacturing snuff exclusively	40
Number manufacturing two or more kinds	130
Total	2,803

Cigar manufacturers.

Total number of cigar manufacturers registered	21,024
Number manufacturing—	
Large cigars exclusively	20,485
Small cigars exclusively	13
Small cigarettes exclusively	318
Large and small cigars	57
Large cigars and small cigarettes	38
Large and small cigars and small cigarettes	3

Small cigars and small cigarettes	6
Small cigars, small cigarettes, and large cigarettes	1
Small cigarettes and large cigarettes	103
Total	21,024

KINDS AND QUANTITIES OF TOBACCO.

Quantity of plug tobacco produced	160,248,195
Quantity of twist tobacco produced	15,531,133
Quantity of fine-cut chewing tobacco produced	11,006,561
Quantity of smoking tobacco produced	217,330,409
Total quantity of tobacco produced	404,116,298
Quantity of snuff produced	31,363,651
Total	435,479,949

QUANTITIES OF LEAF USED.

Description of Manufactures	Quantity of leaf tobacco used in manufacturing	Average Quantity of leaf tobacco used per thousand
	Pounds	Pounds
Cigars weighing more than 3 pounds per 1,000	145,781,078	20.69
Cigars weighing not more than 3 pounds per 1,000	3,909,572	3.70
Cigarettes weighing more than 3 pounds per 1,000	150,910	9.09
Cigarettes weighing not more than 3 pounds per 1,000	46,966,201	3.56

LEAF PRODUCTION OF THE UNITED STATES.

State.	Pounds.	State.	Pounds.
New Hampshire	165,000	Ohio	61,425,000
Vermont	155,000	Indiana	11,925,000
Massachusetts	9,455,000	Illinois	560,000
Connecticut	28,520,000	Wisconsin	50,740,000
New York	4,386,000	Missouri	3,315,000
Pennsylvania	46,680,000	Kentucky	281,200,000
Maryland	18,500,000	Tennessee	64,800,000
Virginia	154,000,000	Alabama	210,000
West Virginia	10,200,000	Louisiana	270,000
North Carolina	167,500,000	Texas	120,000
South Carolina	33,288,000	Arkansas	520,000
Georgia	1,800,000		
Florida	4,000,000		
		United States	953,734,000
		Farm value	$122,481,000

LEAF PRODUCTION OF PRINCIPAL COUNTRIES.
(000 omitted.)

Country.	Pounds.	Country.	Pounds.
United States	953,734	Greece	23,987
Porto Rico	16,500	Italy	39,683
Canada	13,019	Russia, Europe	237,406
Cuba	42,030	Turkey, Europe	68,894
Mexico	34,711	British India	450,000
Santo Domingo	18,000	China	18,016
South America	97,062	Dutch East Indies	182,427
Austria Hungary	188,189	Japan	93,696
France	49,884	Philippine Islands	65,219
Germany	85,741	Africa, Total	43,717
		Russia, Asia	28,791

CIGAR OUTPUT OF TAMPA.

Tampa, Fla., has the reputation of producing more cigars of the clear Havana type than any other city in the United States. Following is Tampa's output of cigars for seventeen consecutive years:

1897	90,408,000
1898	85,144,000
1899	111,670,000
1900	147,848,000
1901	147,330,000
1902	141,905,000
1903	167,630,000
1904	196,961,500
1905	220,430,000
1906	277,662,000
1907	285,660,000
1908	236,681,000
1909	267,059,000
1910	201,405,000
1911	293,360,000
1912	276,360,000
1913	284,991,000

IMPORTS AND EXPORTS

TWELVE MONTHS ENDING JUNE—
IMPORTS OF FOREIGN.

TOBACCO—

	1914 Quantities	Values
Suitable for cigar wrappers—		
Netherlands ....lbs...	5,846,504	$7,453,746
Canada ....lbs...	24,372	20,999
Cuba ....lbs...	155,139	266,677
Other countries ....lbs...	66,772	43,965
Total ....lbs...	6,092,787	7,785,387

All other—			
Germany	lbs...	456,445	208,369
Turkey in Europe	lbs...	8,502,742	5,037,189
Canada	lbs...	81,888	59,958
Cuba	lbs...	26,617,545	16,118,480
Turkey in Asia	lbs...	15,616,543	4,800,284
Other countries	lbs...	2,739,562	1,019,388
Total	lbs...	54,014,725	27,243,668
Manufactures of—			
Cigars, Cheroots and Cigarettes—			
Product of the Philippine Islands—			
Cigars and cheroots free	M....	56,979	.....
	lbs....	901,836	1,370,890
Cigarettes free	M....	8,162	.....
	lbs....	21,032	15,054
All other—			
Cigars and cheroots	lbs..dut..	635,619	3,727,815
Cigarettes	lbs..dut..	67,081	79,554
Total cigars, cheroots and cigarettes	lbs...	1,625,568	5,193,313
All other manufactures of	dut..	.....	164,493
Total manufactures of		.....	5,357,806
Leaf, stems and trimmings—		Exports of Domestic	
Belgium	lbs...	11,677,604	$1,420,956
France	lbs...	54,915,178	4,783,231
Germany	lbs...	32,057,051	4,014,379
Italy	lbs...	45,190,995	6,113,624
Netherlands	lbs...	28,233,746	2,878,310
Spain	lbs...	16,822,696	1,166,888
United Kingdom	lbs...	174,779,326	20,698,374
Other Europe	lbs...	16,818,164	2,015,543
Canada	lbs...	17,688,562	2,953,817
South America	lbs...	3,974,447	568,102
China	lbs...	11,445,697	2,004,730
Japan	lbs...	3,696,273	599,882
British Oceanica	lbs...	13,186,680	2,271,256
Other Asia and Oceania	lbs...	1,723,497	255,515
British Africa	lbs...	6,600,312	870,393
Other Africa	lbs...	6,613,811	784,229
Other countries	lbs...	5,325,943	564,441
Total	lbs...	449,749,982	53,963,670
Manufactures of—			
Cigarettes—			
China	M...	1,093,893	1,746,240
British East Indies	M...	1,079,123	2,205,218
Other countries	M...	373,314	823,580
Total	M...	2,546,330	4,775,038
Plug—			
United Kingdom	lbs...	1,008,524	224,060
British Oceania	lbs...	2,492,092	808,112
Other countries	lbs...	2,702,380	674,560
Total	lbs...	6,202,996	1,706,732
Leaf—		Exports of Foreign	
Suitable for cigar wrappers	lbs..dut...	758,958	$734,643
All other	lbs..dut...	1,862,207	803,522
Total leaf	lbs...	2,621,165	1,538,165

Manufactures of—		
Cigars, cheroots and cigarettes—		
All other—		
Cigars and cheroots .....lbs..dut...	4,812	17,927
Cigarettes .....lbs..dut...	50,269	24,095
Total cigars, cheroots and cigarettes .....lbs...	55,180	42,220
All other manufactures of .....dut...	.....	3,352
Total manufactures of.....	.....	45,572

CUBA'S CIGAR EXPORTS.

As a general thing England is the largest purchaser of cigars made in Cuba; the United States second, and Germany, Canada or France third. The total exportation of cigars from Cuba is from 175,000,000 to 185,000,000 per annum. The following figures, showing Cuba's cigar exports in 1913 and in 1912, give a good idea of the usual cigar output of that famous Island:

	1913. Cigars.	1912. Cigars.
Germany	14,028,326	15,276,580
Argentine Republic	3,928,061	5,459,485
Austria	894,131	777,070
British Indies	98,390	125,625
French Indies	.....	2,300
Danish West Indies	5,100	.....
Dutch Indies	80,339	113,975
Spanish Africa	774,027	598,780
Australia	6,316,505	5,363,428
British South Africa	169,980	253,952
French Africa	124,340	658,523
Bulgaria	15,000	.....
Belgium	589,457	665,658
Brazil	328,622	408,515
Bolivia	13,000	24,300
Bermuda Islands	76,250	40,850
Barbadoes	8,000	6,540
Canada	13,319,147	12,722,219
Columbia	40,845	130,975
Canary Islands	489,105	500,784
Costa Rica	41,646	76,650
Chile	3,488,234	3,206,148
China	34,500	40,750

Denmark	8,000	.....
UNITED STATES	53,577,563	52,815,921
Spain	5,428,515	4,302,793
Ecuador	5,800	7,250
Egypt	165,150	132,770
France	9,362,492	8,509,371
Gibraltar	346,475	309,741
Guatemala	70,950	54,550
Greece	3,000	.....
Holland	129,585	288,900
Honduras	6,000	.....
Haiti	.....	6,550
England	66,842,801	63,540,633
British India	23,730	24,400
Italy	867,500	400,400
Japan	21,000	9,184
Mexico	67,298	41,261
Norway	1,000	23,085
Nicaragua	11,661	9,200
Peru	175,300	150,400
Portugal	239,620	354,455
Panama	316,131	271,894
Paraguay	.....	13,105
Russia	13,000	117,050
Roumania	25,000	22,000
Sweden	6,000	.....
Switzerland	16,300	88,950
Salvador	12,500	20,100
Santo Domingo	.....	725
Turkey in Europe	24,250	9,000
Uruguay	553,104	977,277
Venezuela	51,600	27,890
TOTALS	183,234,330	178,981,472
Increase in 1913 over 1912		4,252,858

PART VI

SCIENCE AND SANITATION

CHAPTER XXII

THE CHEMISTRY OF TOBACCO AND TOBACCO PRODUCTS

Botany of the Plant—Chemical Composition—Various Analyses—Why the Smoke is Sometimes Blue and Sometimes Gray—The Nicotine Content

It is undoubtedly true that one may know all about the tobacco business without knowing all about tobacco. Familiarity with and proficiency in the commercial promotion of a commodity does not necessarily depend entirely upon one's familiarity with every phase and every detail of the subject. It is also true, however, that an intimate, technical and, we might say, scientific knowledge of the product, has a tendency to increase one's interest in his business, and may at times prove to be of practical value.

For those, therefore, who take their studies of tobacco and their connections with the tobacco industry seriously enough to desire a knowledge of the subject from its very foundation, I will devote a section of this volume to some facts about the weed that are not usually a part of every day business life, and which are not generally regarded as essential to a working knowledge of the tobacco industry.

BOTANICAL CLASSIFICATION OF TOBACCO.

The scientific definition of tobacco may not be particularly illuminating to the layman, but for purposes of record it is here given. Botanists describe tobacco as follows:

(1) NICOTIANA—A genus of mainly American plants of the family *Solanaceae*, usually rank acrid-narcotic herbs, mostly clammypubescent, with large entire leaves and terminal racemes or panicles of white

or purple flowers with long funnel form corollas. *N. tabacum* is the tobacco plant.

(2) Tobacco—Any one of several plants of the genus *Nicotiana, especially* tabacum; the chief source of the tobacco of commerce. It is viscid pubescent annual from three to six feet high, and has large sessile ovate or lanceolate leaves diminishing in size from the base upward, and pink funnel-shaped flowers in a terminal panicle. The other principal source of the tobaccos of commerce is *N. rustica,* a small species with ovate petioled leaves and yellow flowers.

CHEMICAL COMPOSITION.

Tobacco in the green leaf contains a large percentage of complex organic bodies. In the ripening and curing of the leaf it undergoes certain chemical changes by which these bodies are removed.

Quoting Penn, an English authority, tobacco consists largely of mineral constituents. These burn into ash, which should be white or grayish-white in color. In good dry leaf the ash is not excessive in quantity, forming from twelve to twenty per cent of the leaf. Reddish ash denotes the presence of iron, and black ash is due to excess of carbon resulting in imperfect combustion.

Nicotine ($C_{10}HN$), the essential characteristic alkaloid of tobacco, found in no other plant, is colorless and liquid at the ordinary temperature. It is a virulent narcotic poison. Nicotine, it may be noted, is an antidote to strychnine and strychnine to nicotine. Nicotine is not present in large quantities in tobacco, forming from one to nine per cent. French and German tobaccos contain the most, nine per cent, Virginia and Kentucky four or five per cent, and Havana and Manila only two to three per cent.

Small as is the percentage of nicotine, it is largely consumed and destroyed in the smoke, the ratio depending on the freeness of combustion. The greater bulk of nicotine is therefore not inhaled.

The ash consists of potash and ammonia salts and nitrates. The smouldering action of tobacco is caused by the nitrate of potash. Tobacco should burn clear-

The Tobacco Flower Is a Pretty Pink Blossom.

ly and freely, but not too rapidly. If it is slow of combustion (due to imperfect curing or poor quality), objectionable products such as carbon dioxide are evolved. This is the case in a badly burning cigar.

But tobacco is never entirely burned. Carbonic acid and water are produced and many other organic substances, which, released or formed by the heat of combustion, are distilled into gases. The condensation of these volatile substances forms the smoke. The color as well as the flavor of the smoke, therefore, depends upon the quantity and nature of the substances forming it.

Among the bye-products of combustion are ammonia and its compounds, an empyreumatic oil found in the bottoms of pipe-bowls, and a dark bitter resinous substance or oil in the pipe stems.

These organisms, remarks another authority, begin to be deposited directly they are formed (by the burning), so that some remain in the mouth, and if the smoke is swallowed or passed through the nostrils, so much more will be retained and absorbed into the system.

The dark bitter oil which forms in the bowls and stems of pipes is popularly regarded as nicotine. This is totally erroneous. It is a joint product of the moisture from the tobacco, produced by combustion and impregnated by smoke. It is really just tar oil, the water of tobacco in combustion with the soot and tar of the smoke.

Nicotine is colorless, and forms an infinitesimal part, less than one ten-thousanth part of all the constituents of smoke.

Heat is the least harmful way of obtaining nicotine. The nicotine dissolved from one cigar would kill a dog, administered internally, but the same dog would have to smoke four hundred cigars continuously before succumbing to nicotine poisoning.

CHEMICAL ANALYSIS OF TOBACCO.

According to one authority tobacco (manufactured) is composed of:

Nicotine	1 to 9 per cent
Malic and citric acid	10 to 14 per cent
Oxalic acid	1 to 2 per cent
Resinous fats	4 to 6 per cent
Pectic acid	5 per cent
Cellulose	7 to 8 per cent
Albuminoids	25 per cent
Ash	12 to 20 per cent

The essential flavoring oil, acetic acid and sugar also contribute small percentages.

BLUE SMOKE AND GRAY.

Smokers will have often noticed that the smoke from the bowl of a pipe or the end of a cigar is blue, while that from the smoker's mouth is gray or brown. Smoke consists of minute particles solid or liquid matter suspended in the air, and its color depends upon the size as well as chemical constitution of the particles. Exact experiment has shown that as the particles increase in size they form colors varying from sky-blue down through the whole range of the spectral scale. The smoke given off from the heated surface of the tobacco in the bowl or the end of a cigar consists of a matter very highly heated, and very fully oxidized and decomposed. It consists mainly of exceedingly small solid particles, and thus the smoke assumes a bluish color. As Lord Kelvin recently explained, minute particles have an intense affinity for moisture. On being inhaled the blue smoke loses its smallest particles, which are captured by the moisture of the mouth. It is these small particles which give the smoke its blue color, the relatively large size of the particles forming the smoke exhaled from the mouth being of the grayish tinge.

ANALYSES OF THE PLANT.

For chemical analyses of tobacco the plant, we refer to the work of R. J. Davidson, at the Virginia experiment station, and to Carpenter, Johnson, Jenkins and others.

AVERAGE COMPOSITION OF VIRGINIA LEAF.

The following table shows the composition of the Virginia leaf, including White Burley, Yellow Orinoco, etc.

				100 lbs. of each part of the plant contains		
	Leaf	Stalk	Root	Leaf	Stalk	Root
Per cent. of parts of plant	55.03	21.87	23.10			
100 lbs. each part contains						
Water	7.62	6.18	6.22	7.62	6.18	6.22
Ash	21.59	13.28	8.14			
Vegetable matter	70.79	80.54	85.64			
Total	100.00	100.00	100.00			
Contains nitrogen	4.37	3.17	1.88	4.37	3.17	1.88
100 lbs. of the ash contains						
Potash	26.60	37.78	22.07	5.74	5.02	1.78
Lime	25.21	16.81	15.95	5.43	2.22	1.28
Magnesia	4.43	4.44	2.54	0.96	0.59	0.21
Phosphoric acid	2.33	4.79	2.50	0.50	0.65	0.21
Insoluble matter	9.01	4.92	34.98	1.94	0.66	2.88
Other substances	32.42	31.26	21.96	73.44	81.51	85.54
Total	100.00	100.00	100.00	100.00	100.00	100.00

Analyses of seed of ten varieties of Virginia tobacco show that the air-dried seed contains five and one-half to six per cent of water, of nitrogen three and forty-four hundredths to three and seventy-eight hundredths per cent. and of ash three to four per cent. Of the ash, about one-third is phosphoric acid, one-third potash and one-fifth magnesia. The ash of the seed contains over ten times as much phosphoric acid, about four times as much magnesia and nearly one-fourth more potash than the ash of tobaco leaf.

Analyses of the whole plant,—root, stem and leaf,—at three stages of growth, calculated from the average results for three leading varieties (White Burley, Medley Pryor and Yellow Orinoco) show that their composition at these three stages is alike only in nitrogen soda and magnesia. As would be expected, the plant

from the plant bed has the highest percentage of moisture. It also shows the highest ash, phosphoric acid and potash. These last two ingredients gradually diminish as the age of the plant increases, thus showing that the young plant requires a large amount of potash and phosphoric acid. The percentages of lime and chlorine are just the reverse of the phosphoric acid and potash, as they increase with the age of the plant. The percentage of the insoluble matter is comparatively small in the plant from the plant bed, and is only about one-fourth as much as at the time of topping and cutting. It appears that the plant taken from the plant bed contains, in the air-dried state, nearly three per cent. of nitrogen, nearly 1 per cent of phosphoric acid, over 8 per cent. of potash and about two and one-half per cent of lime. Taken at the time of topping, it contains about three per cent of nitrogen, one-third of one per cent of phosphoric acid, about four per cent. of potash and over two per cent of lime. Taken at time of cutting, it contains nearly three per cent of nitrogen, one-third of one per cent of phosphoric acid, nearly three and one-half per cent of potash and over three and one-half per cent of lime.

The following table shows the average composition of cigar leaf, pole-cured:

	Silica.	Chlorine. Sulphuric Acid.	Phosphoric Acid.	Lime.	Magnesia.	Potash.	Soda.	Total Ash.	Nitrogen.
Av. 12 Conn. crops.	0.14	1.55	1.09	0.59	5.71	1.36	5.79	0.33	16.55	4.24
New Milford, Ct....	0 21	0.33	0.62	0.48	6.10	1.71	5.20	trace	15.10	4.97
Hartford, Ct.	0.20	2.14	0.62	0.61	5.33	1.40	7.66	0 05	18.56	4.10
Pa., Lancaster Co...	0.19	0 27	0.47	1.03	5.13	1.47	8.92	0.06	17.98	2.70
Ohio	0.44	0 22	0.49	0.61	4.93	2.46	4.75	0.04	14.22	4.42
New York	0.75	0.95	0.59	0.56	6.09	1.33	5.13	0.06	15.50	4.59
Wis. and Ill	0 72	0.15	0.60	0.48	5.17	1.94	5.97	0.17	15.52	5.23
Average	0.35	0.66	0 64	0.62	5.50	1.67	6.20	0.10	16.19	4.12

Omitting from the above the percentage of nitrogen in Pennsylvania seedleaf, which is exceptionally low, the average of the other samples gives four and forty-four hundredths per cent of nitrogen in pole-cured tobacco leaves.

ANALYSIS OF VUELTA ABAJO SOIL.

The following result is obtained from an analysis of rich soils in two different localities of Vuelta Abajo:

Organic matter	18.40	23.20
Silica	70.80	62.20
Lime	.40	4.60
Alumina	.40	traces
Oxide of iron	10.	4.

NICOTINE AND THE QUALITY OF TOBACCO.

Nicotine is the characteristic alkaloid of tobacco, writes Dr. Garner, of the Government Plant Physiology Bureau, and thus far has not been found in any other plant. Its function in the economy of the plant is not understood, and it has not been determined with certainty whether it plays a rôle in nutrition or is simply a waste product resulting from katabolic changes in the albuminoid constituents. The physiological effects on the human system resulting from the use of tobacco are doubtless due chiefly to the presence of nicotine, though in the case of tobacco used for smoking purposes other constituents of the smoke probably play a considerable part. On the other hand, it has been repeatedly shown that the burn, flavor, aroma, and other important qualities of tobacco are in no sense proportional to the amount of nicotine present. Indeed, even the "strength" of manufactured tobacco—using this term in the sense understood by the trade—is not dependent upon the nicotine content. It seems only reasonable, however, to suppose that tobacco entirely free from nicotine would no longer prove satisfying to the consumer any more than would whisky deprived of all its alcohol.

Numerous attempts have been made to devise a process for the partial removal of the nicotine from tobacco, either before or after it is manufactured, by appropriate treatment, and many patents

have been issued for processes intended to accomplish this result, but none of the proposed methods has as yet proved sufficiently practicable to come into general use, and this is not surprising when it is remembered that the flavor and aroma of tobacco are comparable in delicacy to those of tea and coffee and that consequently even the mildest treatment for the removal of the alkaloid is almost certain to result in injury to these qualities.

There can be no doubt that there would be a genuine demand for tobacco containing only a very small percentage of nicotine but retaining the other attributes of the best grades of the crop as now produced, especially in the case of the cigar-filler types. The most rational method of attaining this end would seem to lie in the systematic breeding of types characterized by their low nicotine content, and at the same time avoiding those soils, fertilizers, and cultural methods which tend to the excessive production of the nitrogenous constituents of the plant. Extensive experiments have been undertaken in connection with the Tobacco Breeding Investigations of the Bureau of Plant Industry with the object of securing types of tobacco of this kind, and the results already obtained tend to show that the variation in nicotine content of individual selections from various types is fully as great as that of such physical characteristics as shape, size, and number of leaves.

THE NICOTINE CONTENT OF TOBACCO SMOKE.

In 1913 the *Lancet,* London's leading medical and scientific journal, conducted an investigation into the toxic effects of tobacco smoke, with the following conclusions:

"The smoke obtained in pipe, cigarette and cigar smoking was examined, and as to the leaf itself, it was found that pipe mixtures usually contain the largest amount of nicotine—2.04 to 2.85 per cent—that Egyptain and Turkish cigarettes come next, with 1.38 to 1.74 per cent, Virginia cigarettes, 1.40 to 1.60

per cent, British cigars 1.24 per cent, and Havana cigars 0.64 per cent.

"The cigarette, whether Egyptian, Turkish or American, yielded the least amount of its total nicotine to the smoke produced; the pipe yielded a very large proportion, in some cases 70 to 80 per cent. of the total of its nicotine to the smoke reaching the mouth of the consumer, while the analysis of the cigar smoke gave intermediate figures."

CHAPTER XXIII

THE SCIENCE OF TOBACCO SOILS AND CLIMATES

Meteorological Influences Important but too Subtle for the Most Sensitive Instruments—Effect of Fertilizers—The Water Content of Soils

It is a curious and interesting fact that tobacco suitable for our domestic cigars is raised in Sumatra, Cuba, and Florida, and then passing over our middle tobacco States, the cigar type is found again in Massachusetts, Connecticut, Pennsylvania, Ohio, Indiana, Illinois, and Wisconsin. The tobacco which we use only for chewing and smoking and which we send abroad is raised in the intervening States, the very best locality lying just below the latitude of southern Ohio.

It is surprising to find so little difference in the meteorological records for these several places during the crop season. There does not seem to be sufficient difference to explain the distribution of the different classes of tobacco, and yet this distribution is probably due mainly to climatic conditions.

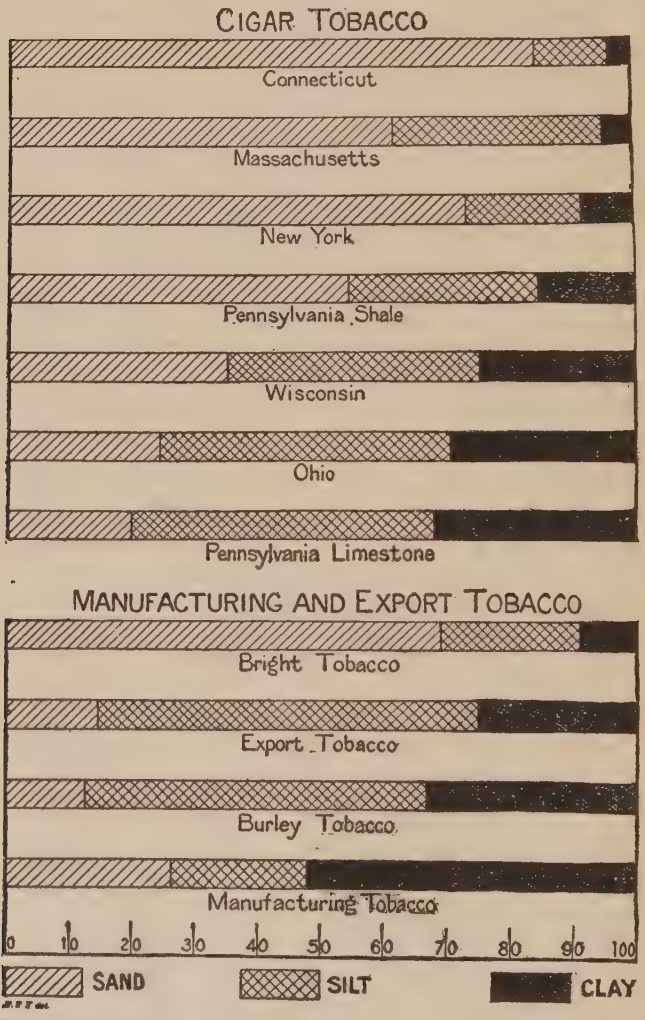
One must still judge therefore, so far the climate is concerned, mainly from the experience of others as to the class of tobacco to be raised, as the ordinary meteorological record will be of very little value in determining this point. The plant is far more sensitive to these meteorological conditions than are our instruments. Even in such a famous tobacco region as Cuba, tobacco of good quality can not be grown in the immediate vicinity of the ocean or in certain parts of the island even on what would otherwise be considered good tobacco lands. This has been the experience also in Sumatra and in our own country, but the influences are too subtle to be detected by our meteorological instruments.

SOILS OF THE SEVERAL DISTRICTS.

Under given climatic conditions the class and type of tobacco depend upon the character of the soil, especially on the physical character of the soil upon which it is grown, while the grade is dependent largely upon the cultivation and curing of the crop. Different types of tobacco are grown on widely differing soils all the way from the coarse, sandy lands of the pine barrens to the heavy clay limestone grass and wheat lands. The best soil for one kind of tobacco, therefore, may be almost worthless for the staple agricultural crops, while the best for another type of tobacco may be the richest and most productive soil of any that we have. It is particularly true of tobacco, to a greater extent perhaps than of any other crop, that the texture and physical properties of the soil influence the physiology of the plant to such an extent as to determine and control the distribution of the widely differing distinct types of tobacco. Soils producing a heavy shipping tobacco will not produce fine tobacco of any variety. Soils containing a large proportion of clay, of which for other reasons are very retentive of moisture, tend to produce large, heavy plants, which cure to a dark brown or red. A lighter sandy soil produces a plant having a thinner and more delicate leaf, which by proper treatment can be cured to a bright red mahogany or fine yellow color. So marked is this influence of soil upon the quality of the tobacco, that a fine, bright tobacco land may be separated by only a few feet from a heavier clay soil, which will produce only a heavy manufacturing or export leaf.

Manures and fertilizers tend always to increase the yield per acre, but where large quantities of nitrogen are added to the soil there is a tendency for the leaf to become thicker, heavier, and more gummy. In the case of the fine bright tobaccos or naturally thin-textured leaves this is apt to cause a marked deterioration in the character of the leaf; but with the heavier varieties this result is far from undesirable, because it merely increases the normal influences of the soil in making the leaf heavier, richer, and of more body.

COMPOSITION OF TOBACCO SOILS



Considerable control can therefore be exercised upon the quality or grade of the leaf not only by judicious cultivation, but by proper fertilization.

The accompanying diagram illustrates graphically

the relative proportion of the sand, silt, and clay in the soil adapted to different classes and types of tobacco, and shows, upon careful study, a marked relation between the texture of the soil and the grade of tobacco produced.

THE WATER CONTENT OF TOBACCO SOILS.

The amount of water a soil contains depends largely upon the texture and structure, and is influenced, of course, by the character of the season. It varies from day to day, and those variations are exceedingly important in their effects upon the crop.

It is evident from the work that has been in the Division of Soils of the United States Department of Agriculture, that the peculiar adaptation of certain soils to certain types of tobacco is largely dependent upon the relation of the soils to water and the amount of water they maintain. The great difference in the water content of soils adapted to the different types of tobacco has been pointed out. Tobacco of a given quality can only be grown economically where the conditions are adapted to it, but these conditions are liable to vary in any soil throughout the season. It therefore becomes necessary in order to secure the best results to maintain some control over the water supply of the soil, in order to keep the conditions as nearly perfect as possible throughout the season. Much can de done to control the water supply through methods of preparing the land and of cultivating the crop.

The farmer should select the type of tobacco best suited to his locality and to the peculiar soil conditions with which he has to work, and should adopt such methods of cultivation as will maintain as nearly as possible the best conditions for the quality of leaf it is proposed to raise.

CHAPTER XXIV

THE TOBACCO BUG PROBLEM AND HOW TO DEAL WITH IT

The Weed Susceptible to Insect Crusades—The Bisulphide and Hydrocyanic Treatments and How Applied—The X-Ray Method

One of the most troublesome and expensive features of tobacco culture, particularly in the southern districts, is the control of numerous insects, which if not combated would oftentimes completely destroy the commercial value of the crop. Among the more important insects attacking the tobacco plant may be mentioned the tobacco flea-beetle, the tobacco "wireworm," cutworms, the hornworms, or "green worms," and the tobacco budworm. Of these the hornworms, or "green worms," are usually the most destructive.

For detailed information regarding insects attacking tobacco and methods of combating them, the reader is referred to Farmers' Bulletin 120, entitled "The Principal Insects Affecting the Tobacco Plant," obtainable from the Superintendent of Documents, Washington, D. C.

THE TOBACCO BEETLE AND HOW TO ERADICATE IT.

The tobacco beetle, commonly known as the cigarette beetle, has been a persistent and pernicious enemy of the tobacconist. A few years ago, however, the United States Department of Agriculture, after a number of experiments, discovered certain remedies for the pest, which have since been perfected.

The name "cigarette beetle," says a report of the department, is more or less of a misnomer, since the insect not only feeds in all kinds of dried tobacco, and even in snuff, but also in many other substan-

ces, such as rhubarb, ginger, cayenne pepper, ergot, turmeric, yeast cakes, rice, figs, prepared fish food and dried plants prepared for the herbarium.

Working as it does in all kinds of cured tobacco and living in this substance during all stages of its existence, it damages cigarettes and cigars principally by boring out of them, making round holes in the wrappers so that they will not draw. Leaf tobacco is injured for wrapping purposes by being punctured with holes made both by the larvae and the beetle, and fillers and fine-cut are injured by the reduction of their substance by the actual amount consumed by the larvae. In artificially warmed buildings the insect is apt to be present in all stages at almost any time of the year. Professor Atkinson observed that the larvae hatch in eleven days from the time of egg laying, and that they remain as larvae from sixty to seventy days. The larvae when full grown spins a fairly compact cocoon of a silky substance covered with bits of whatever substance the insect is breeding in. In this cocoon it soon transforms to a pupa and the adult beetles emerge later.

PREVENTION AND CURE.

The remedy, in a clean, well-swept cigar store, is simple. The affected stock should be placed in an air tight show case in installments, the covers of the cigar boxes being loosened (to permit of free circulation) and fumigation made as hereinafter described.

In a large factory the operation is, of course, more difficult. Often it is an old building, having many cracks and crevices in which tobacco dust has accumulated. Nevertheless, the general principal of making the place practically airtight and then fumigating will be found effective.

Owing to numerous requests for information in regard to the control of the cigarette beetle or "tobacco beetle," *Lasioderma serricorne Fabr.,* an agent of the Bureau of Entomology, U. S. Department of Agriculture, Mr. G. A. Runner, spent several months

at Key West, Fla., studying this insect in its relation to cigar manufacturers.

The principal sources of infestation in a cigar factory were found to be:

(1) Infested tobaccos brought into the factory.

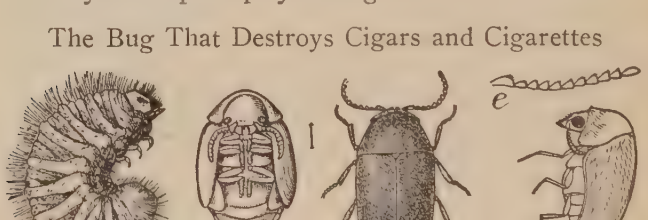
(2) Infested tobacco, refuse material, or cigars that have accumulated in the factory (beetles breeding in such material quickly spread to all parts of the factory).

(3) Proximity of the factory to tobacco warehouses or to other factories where beetles are present in large numbers.

It was recommended:

(1) That all worthless or infested tobaccos be destroyed or promptly fumigated.

The Bug That Destroys Cigars and Cigarettes



The cigarette beetle: *a*, larva; *b*, pupa; *c*, adult; *d*, side view of adult; *e*, antenna—all greatly enlarged, *e* still more enlarged

(2) That all infested bales or hogsheads of tobacco be fumigated when brought into the factory.

(3) That doors and windows of storage rooms be screened.

(4) That the cigarmakers' room be kept free of trash and refuse tobacco in which beetles may breed.

(5) That trays of newly-made cigars be kept screened or covered.

(6) That cigars should be kept in tight storage compartments, and that they should not be left uncovered upon the sorting table over night. (It was found that the process leading up to and included in the rolling of the cigar killed practically all the

stages of the beetle. It was also found that most of the eggs laid by the beetle were deposited late in the afternoon and at night).

The foregoing recommendations may be considered as preventive, and they are just as important as the following direct methods of control:

COMBATING THE CIGARETTE BEETLE.

A. Trap Lights.

Specially constructed trap lights may often be used to advantage. A very efficient trap light may be made by pinning together sheets of sticky fly paper in the form of a cylinder, and suspending it around an electric light.

B. Fumigation.

Owing to the protection afforded the beetle by the tobacco it has been found necessary to use stronger dosages of the fumigants than are usually employed against other insects.

Carbon Bisulphid.

To be effective against all stages of the beetle, particularly when protected by tobacco, carbon bisulphid should be used at the rate of not less than four pounds to 1,000 cubic feet of space, with an exposure of forty-eight hours. A very tight fumigating box is absolutely necessary.

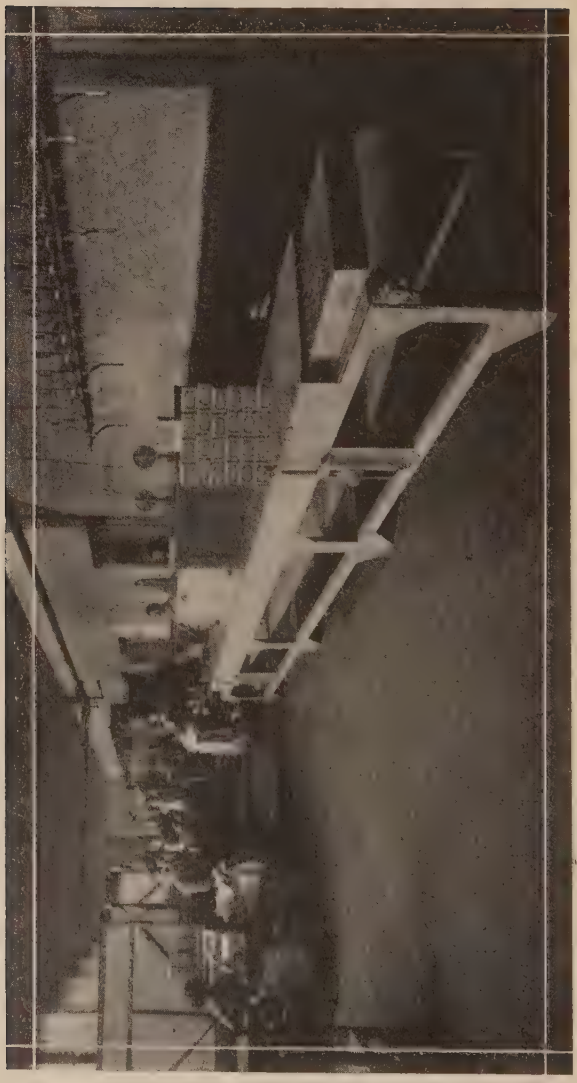
Directions.—Pour the carbon bisulphid into shallow pans which should be placed above the infested material, for this gas is heavier than air. *The fumes of this liquid are inflammable,* and great care should be exercised to keep all fire away from the vicinity of the fumigating box until it has been thoroughly aired.

Hydrocyanic-Acid Gas.

Hydrocyanic-acid gas is made by the use of potassium cyanid, sulphuric acid and water. Use multiples of the following formula:

Potassium cyanid (98 per cent pure), 1 ounce avoirdupois.

Commercial sulphuric acid, 1¼ ounces (liquid measure).



Sterilizing Cigars by the X-Ray Method

Water, 3 ounces (liquid measure).

For a generator use an earthenware receptacle of small diameter, so that all the cyanid of potassium may be covered by the water and acid. The receptacle should never be filled more than half full of water and acid; otherwise the action of the chemicals may cause the contents to boil over.

Directions.—First pour in the water, then the acid; last, just before closing the fumigation box, drop in the cyanid of potassium. For convenience the cyanid may be put into thin paper sacks and these dropped into the generator. However, if the paper sacks are rather thick they should be slit in several places so that the acid and water may quickly come in contact with the cyanid. An exposure of twenty-four hours should be given. Hydrocyanic-acid gas is lighter than air, hence the generators should be placed below the material to be fumigated. For general use four ounces of cyanid to 100 cubic feet will be found satisfactory, but for baled or closely packed tobaccos use eight ounces to 100 cubic feet of space. Use a very tight box or closet for the fumigation. AVOID BREATHING THE GAS, for it is very poisonous.

Effect of the Fumigants Upon Tobacco.

Expert tobacco men examined the tobaccos and cigars treated with bisulphid of carbon and with hydrocyanic-acid gas and all were of the opinion that these fumigants had no effect upon the tobacco. After the fumigation the cigars should be aired thoroughly and all odors will disappear.

Although the foregoing information is based on investigations in a cigar factory, and although the recommendations are primarily for cigar manufacturers, similar conditions will undoubtedly be found in other branches of the trade, to which the foregoing remedies will readily apply.

THE ELECTRICAL STERILIZATION OF TOBACCO PRODUCTS.

Since the experiments of the Government with the problem of sterilizing tobacco and cigars by fumiga-

tion, private enterprise has introduced the electrical, or X-ray method, and a machine for this purpose is now in operation in some cigar factories.

This machine was invented and is now being operated by Franklin S. Smith, of Philadelphia. The United States and Florida rights to it are owned by M. E. Gillett & Son, of Tampa. For years, every effort was made to make this intricate machine commercially valuable, and it is now claimed that this has been accomplished.

This machine generates 150,000 volts of uni-directional current. The entire electrical wave is rectified and three kiloamperes are passed through each of the two seven-inch X-ray tubes. The cigars which pass through this machine are subjected to direct X-ray radiation of five minutes and about eleven minutes of indirect radiation.

Cigars are passed through the machine at the rate of 40,000 an hour. The electrical energy required to operate the machine is three kilowatts. The cigars can only be properly treated after they have been packed in boxes and sealed and they must not be opened for forty-eight hours after being so treated—the reason for this condition being that daylight or other light counteracts the X-ray effect.

The machine is intended primarily to destroy the egg of the tobacco beetle or any other germ which may exist in the manufactured or leaf tobacco.

CHAPTER XXV

THE CAUSE OF "MOLDY CIGARS" AND THE PREVENTION

Organisms Traced to the Gum Used by the Cigarmakers—By Using a Boracic Acid Solution in the Paste Molds Can be Avoided

The matter of molds forming on cigars is, with the possible exception of the tobacco beetle, the most persistent annoyance to which the cigar trade is subjected.

In 1901 a number of complaints were received from eastern cigar manufacturers to the effect that considerable losses were being sustained through the appearance of moldy growths on the finished products. These growths in some cases appeared within about three days after the manufacture and the boxing of the cigars, thus frequently being noticed before they left the factory. In some instances, however, they did not appear until after considerable periods of time. If the mold was detected before the cigars left the factory, the only recourse was to wipe off the growth by hand, a rather expensive process. Perhaps equally objectionable results followed when the mold was not discovered until the cigars were in the hands of the buyers. In either case very considerable loss was likely to result.

R. H. True, pysiologist, of the United States Department of Agriculture, was asked to study the problem and, if practicable, to work out feasible means by which the trouble could be remedied. Several factories in which this trouble appeared were visited, managers were consulted, and materials for further work were obtained.

Dr. True concluded, and proved his conclusions by numerous experiments, that molds are developed

principally through the gum tragacanth paste used to fasten the small flap at the head of the cigar. He suggests a remedy for molds, which he proved, first by his own experience and second by its use in cigar factories during a period of several years.

This remedy is merely the use of a boracic acid solution instead of plain water in making the paste.

A digest of his bulletin on the subject follows:

Factory Conditions.

In order to get light on the conditions to be dealt with, the processes involved in making the brands of cigars most liable to mold were observed in the factories. In the case of one factory more difficulty was experienced with Sumatra wrappers than with other sorts, and the trouble was believed to be worse in rainy seasons than at other times. The mold usually appeared most abundantly on the "head," or closed end of the cigar, less frequently on the veins or other elevated portions of the wrapper, but in some cases the entire surface was more or less involved.

Paste Used.

Gum tragacanth is used in small quantity to fasten the wrapper of the cigar in place. The wrapper is rolled tightly on the cigar, the rolling proceeding from the open end toward the head, the last portion of the wrapper remaining free being a small flap of leaf which serves to finish off the head. This small flap receives a little paste on the under surface and is then carefully brought into place. The cigar is then usually rolled with some pressure between the hand and the board or table at which the cigarmaker works, thus giving it the desired regularity of form. Thus, a little paste is always found at the head of the cigar, and if an excess has been applied, especially if the paste is rather thin, a portion is liable to be squeezed out on the board or table at which the maker works, and the cigars may receive a more or less extensive smear of paste over the surface of the wrapper.

The paste as usually made up contains about ten parts by weight of gum tragacanth to ninety parts of water. A large stock is generally made in one container, sometimes only enough to last for the day and sometimes enough to last for a longer period. An inspection of the paste pots in several factories showed that while some were in fairly clean condition the sides of others were thoroughly covered with molds, indicating that in some cases little attention was paid to cleanliness regarding this feature.

An inspection of the wrapper leaf in no case showed visible mold, although it is a matter of common observation that when tobacco leaves are kept sufficiently moist in a closed space they can be made to mold.

Molds in Tragacanth Gum.

Tragacanth gum is usually bought in considerable quantities for use in the larger factories, and, if the samples obtained in this investigation from several such sources were representative, the highest grades of the gum are not used. It was thought possible that these gums themselves might be carriers of molds, and several samples were set away in sterile Petri dishes to which a small quantity of sterile distilled water was added. These cultures, like others to be described, when not under observation were kept in a dark chamber in which the temperature varied between 21.5 deg. and 25 deg. C. In three days all the samples showed an abundant growth of molds, which began to develop fruiting stages on the fourth day * * * *.

Infection Experiments on Wrapper Leaf.

It having been rendered probable that the tragacanth paste was inoculated with the molds from the start, the next question to be answered was that of the seat of the growth of molds on the wrappers. As it has already been shown that the paste itself is a favorable culture medium for these organisms, it follows that the tobacco leaf in itself is not neccessarily a favorable support for the molds.

However, it is well known that moist tobacco leaves do become moldy under conditions favoring this process, and experiments were made having for their object the infection of wrapper leaves with the two species of mold last mentioned. These attempts failed to produce mold on the leaves used in the absence of any substance foreign to the leaves that might act as a source of food for the fungi.

Infection Experiments on Cigars.

In view of the nature of the problem under study, the fact that cigars could be infected with molds was not open to doubt. Since it had been shown that these molds do not readily grow on wrapper leaf, it appeared probable, in view of the fact that the infection was introduced with the tragacanth paste, that the growth on the cigar was confined to the paste present on the wrapper. It was thought desirable to try to check up this conclusion by attempting to grow these molds on cigars. Accordingly, repeated attempts were made to grow the organisms in question on pieces of cigars moistened and placed in sterile Petri dishes or test tubes. In some cases these pieces molded and in others they did not. Usually the piece at the head of the cigar molded without difficulty, while those portions from other parts of the cigar molded less readily.

This seemed to confirm the view that the molds were introduced with and in general grew on the paste, and the appearance of the mold over a large part of the surface of a cigar indicated the smearing of excess paste over a corresponding portion of the surface.

Remedial Measures.

Having located the cause of the trouble in the organisms above discussed and having found the point of their entrance, as well as the seat of their activities, to be in the tragacanth paste, practical remedial measures seemed to lie along the line of sterilizing the paste.

In view of the conditions governing the subse-

quent handling and final utilization of cigars, an acceptable sterilizing agency must combine several characteristics. It must be permanent, since cigars sterilized for but a short time are liable to mold at a later period when conditions of heat and moisture concur with or follow the exposure of the cigars to the infecting organisms. The substance must be odorless and tasteless; otherwise it will alter the taste and aroma of the cigar, points on which smokers, and therefore dealers, are very sensitive. It must not alter the color or the lustre of the wrapper, since on these the selling quality of the cigars in considerable part depends.

A variety of substances having antiseptic properties were chosen for test.

Practical Directions for the Use of the Remedy.

A practical course of treatment based on the use of boric acid was accordingly outlined for tests on the factory basis. Since the paste evaporates water between the time of making and of using, a concentration somewhat less than saturation was recommended in making the paste. This would also tend to decrease the liability of the acid to crystallize out in a conspicuous way on the surface of the cigars should paste happen to be smeared on them. The following concise directions were prepared:

Place boric acid in warm water at the rate of one ounce of dry acid to one and three-quarters pints of water. Stir till the acid is all dissolved. Use this solution instead of water in making up the paste. Great care should be taken not to use more paste on the cigar than is necessary, since it is liable to be smeared on the surface of the cigar, where the boric acid in the paste ends to crystallize, giving an appearance suggesting mold.

These directions have been followed for some years in the factory in which the complaints originated, and when the writer was last in communication with those in charge the boric acid treatment was in use as a routine practice and only in rare instances were molds found troublesome.

TO REMOVE MOLDS FROM CIGARS.

The above, of course, is not a remedy but a preventive. If, however, a dealer finds himself in possession of cigars upon which the molds have formed, they can be removed by wiping the cigars carefully with a soft, moist cloth.

CHAPTER XXVI

THE CHEMICAL PURITY OF CIGARS, TOBACCO AND CIGARETTES

No Harmful Drugs or Ingredients Used in any Form of Tobacco Manufacture—The Government Inspection System Virtually Guarantees the Purity

For over two centuries tobacco has been a target at which have been hurled the invectives and anathemas of discontented busybodies. Probably the original anti-tobacco crank was King James the First, who wrote the famous "Counterblaste against Tobacco," which was issued in book form, and in which he charged the tobacco habit with every evil and depravity this side of Hades. Despite this animosity, which has survived these hundreds of years, the culture, manufacture and consumption of tobacco has continued to grow and prosper.

Nevertheless, there is no question but that the publicity attained by the arguments of the "antis" has some degree of restraining effect upon the use of the weed. No matter how steadily or rapidly the production of tobacco has increased, the growth and prosperity of the industry would be even greater were it not for the persistent opposition which is set up against it in some quarters.

In the early days of tobacco history, when its enemies confined themselves to exaggerated stories of the chemical effect of tobacco upon the human system, the need for going to its assistance was less urgent. But nowadays, when the enemies of the weed, having failed to materially impede its progress by alleging deleteriousness *per se,* have begun to charge that dangerous drugs and narcotics are added to the natural content of tobacco, the consequences take on a more serious aspect.

There is nothing in the manufacture of tobacco that needs covering up, and there is nothing of which any member of this industry may be ashamed.

There is no such thing as impure tobacco.

There are no narcotics used in the manufacture of any brand of snuff, smoking tobacco, chewing tobacco, cigarettes, or cigars.

There are no harmful drugs or ingredients used in any branch of manufacture in the tobacco industry.

AMPLE PROOF OF PURITY.

The absurdity of the many stories started by the enemies of tobacco, and what is more deplorable, repeated often by members of the tobacco industry, is shown most eloquently by an official document that lies before me at the present time. It is a letter from R. E. Cabell, Commissioner of Internal Revenue, and reads as follows:

WASHINGTON, D. C., May 10, 1912.

HON. WM. RICHARDSON,
House of Representatives,
Washington, D. C.

MY DEAR SIR:

I have your letter of May 8 informing me that as chairman of the Sub-committee of Inter State and Foreign Commerce Committee of the House of Representatives on the subject of the Food and Drug Act, you wish to get from this office suggestions on the subject of weights and measures, and on the subject of tobacco products that contain any poisonous or deleterious ingredients, rendering such articles injurious to health, or that include licorice.

With respect to weights and measures as applied to tobacco, etc., and other articles on which an internal revenue tax is collected, I beg to suggest that the matter is already sufficiently covered by existing internal revenue laws. With respect to prohibiting the use of licorice in manufacturing tobacco the proposition seems to be altogether absurd. Licorice is one of the recognized ingredients which enters into the manufacture of chewing tobacco. A proposition to prohibit manufacturers of icecream from using sugar, or flavoring, and limiting them solely to the use of cream, would be exactly analogous. Or the proposition to limit a manufacturer of cake to use only flour. The use of licorice, molasses, rum, alcohol and certain flavoring matters is as

essential in the manufacture of tobacco as is the use of eggs, sugar and other flavoring matter in cake; or the use of sweetening and flavoring in ice-cream, etc. Such a provision would completely annihilate the manufacture of chewing tobacco, with a consequent loss to the Government in revenue of from twelve to fifteen millions of dollars and seriously affect all other kinds of manufactured tobacco from which source at present some fifteen millions of dollars per annum additional are collected.

With respect to the use of any poisonous or deleterious ingredients in tobacco, legislation might be proper if there was any reasonable belief that such legislation is needed.

As above stated the manufacture of tobacco is at present under complete Governmental Supervision. Accurate records are kept, not only of the tobacco, but every other material that is used in its manufacture.

By reference to the report of the Internal Revenue Bureau for the fiscal year ended June 30, 1911, you will find full statistics relative to this matter on pages 113 to 127, inclusive You will note that during that fiscal year some forty-five millions of pounds of licorice were used; some forty-three millions of pounds of sugar, and all other materials which are not itemized in the annual report but which include molasses, rum, alcohol and all the other ingredients, flavoring matters, etc., there were some twenty-five millions of pounds used.

The Internal Revenue Bureau already, as I state, **keeps complete records of these matters.**

Very respectfully,
R. E. CABELL
Commissioner.

There ought to be no need to go any further than the above for a complete explosion of any false or malicious statements about the contents of tobacco products.

Of course it would seem that any one with a most meagre knowledge of arithmetic could see at a glance that under the existing low prices of tobacco to the consumer it would be commercially impossible for a manufacturer to use expensive narcotic drugs even in very small quantities, in the manufacture of his product,

It would also seem that any one of even less than average intelligence could perceive that a tobacco man who induced the use of drugs through his product would soon put himself out of business, because once a tobacco user becomes a drug fiend

he would find a means of procuring the drug without the tobacco.

But why the need of additional evidence of the falsity of stories about "doped" tobacco when the official document printed above shows how the United States Government is in direct surveillance over and in control of the manufacture of tobacco products and keeps complete records of whatever ingredients those products contain?

There is absolutely no question but that all kinds and forms of tobacco are pure and harmless.

Under the laws of our country all forms of tobacco are manufactured under the vigilant eye of the United States Internal Revenue Bureau. Every cigar, cigarette, tobacco and snuff factory is regularly inspected by Government agents, and every manufacturer of tobacco, in any form whatsoever, is obliged to keep a record for the Government, not only of all tobaccos used, but of all other ingredients employed in producing their goods.

There would be no purpose or no profit in the mixture of narcotic drugs with any form of tobacco; but even if there were, it would be impossible for any manufacturer under the existing internal revenue system to indulge in such a practice.

Let every one bear in mind that there is nothing in the manufacture of tobacco in any form whatsoever of which any member of the industry need be ashamed. The only elements in cigars, cigarettes, chewing, smoking tobacco and snuff that could possibly be regarded as deleterious are the natural chemicals in the weed itself, drawn by nature from the soil. These are nicotine and pyridine, whch admittedly, have mildly narcotic properties. Scientists and hygiene experts have shown repeatedly, however, that these natural chemicals that grow in the plant are not harmful to normally constructed people of matured growth and are not harmful to any adult, normal or abnormal when tobacco is used with reasonable moderation.

CHAPTER XXVII

THE WHOLE TRUTH ABOUT THE HYGIENE OF TOBACCO

Used Rationally, It is a Preventive of Contagion—Eminent Medical Authorities Report It Harmless and Prove their Claims

No less important an authority than the London *Lancet* is responsible for the statement that tobacco probably acts as a preventive of contagious diseases.

"Those who smoke in moderation have a far better chance of resisting disease than those who do not smoke at all," says the *Lancet*.

"Definite experiments have been made which show that tobacco smoke rapidly destroys in particular the comma baccilus of cholera.

"A good many years ago it was reported by the senior medical officer of Greenwich workhouse that tobacco-smoking inmates enjoyed comparative immunity from epidemics.

"During a cholera epidemic at Hamburg it was reported that not a single workman in the cigar factories in that city was attacked by the disease. Later it was stated that among a body of five thousand cigarmakers only eight cases and four deaths from cholera occurred.

"Tobacco smoke has destroyed the bacilli of Asiatic cholera, as well as pneumonia, and there is evidence that it has been preventive of some forms of nasal catarrh.

"Excessive tobacco smoking, of course, may easily give rise to constitutional effects, which diminish the resisting power of the body to disease, in which case it is probable that the habit would afford not only no protection, but an opening for invasion."

MAKING CIGARETTE PAPER.

Instead of being the medium for conveying harmful drugs to the smoker, cigarette paper is, on the other hand, about the purest substance manufactured. As stated in the treatise on cigarette-making, this paper is considered by the paper manufacturing trade as the highest state of perfection, in point of purity, that has been achieved by the paper-making industry. Practically all the cigarette papers used in this country come from France, who, as a matter of fact, makes the cigarette paper for almost the entire world.

These papers are so thin and light that it takes several hundred of the little sheets that go around the cigarette to make an ounce. While commonly known as rice paper, this paper is not made from rice but from flax and hemp trimmings, only new material being used. The flax and hemp is cut into small particles, thoroughly mixed and ground almost to a dust. Then it is put through a washing process, crushed into a pulp and rolled out into paper.

ANALYSIS OF CIGARETTE PAPERS.

Dr. James F. Babcock, who was for five years Professor of Chemistry in the Massachusettes College of Pharmacy, and for five years Professor of Chemistry in the Boston University, and for seven years State Assayer of Liquors in Massachusetts, reports as follows on his analysis of cigarette papers:

"Analysis of the paper wrappers demonstrates the absence of any trace of arsenic, white lead *or other poison.* The papers are all of excellent quality. They contain such elements as are always to be found in the plant producing the fibre from which they are made, *and contain no others.*"

THE TRUTH ABOUT THE TOBACCO HABIT.

During nearly twenty years of close application to the tobacco industry the author has not neglected the study of the weed from a hygienic standpoint.

In matters pertaining to physical health, however, the views of a writer who is an authority on medicine, physiology and pathology, naturally have more weight than the views of a writer who has only a layman's knowledge of medicine and the human body. I taken the liberty, therefore, of including in this record excerpts from a paper in Harper's Weekly by Leonard K. Hirshberg, M. D., M. A., M. A., A. B.

WHAT DR. HIRSCHBERG SAYS.

Practically all of the world's gigantic store of anti-tobacco literature is based upon four fundamental propositions:

1. Tobacco contains nicotine, which is a powerful narcotic and poison.

2. In the process of smoking, nicotine is absorbed into the body and produces or induces many deadly maladies, including cancer, paralysis, heart desease, bronchitis, blindness, and tuberculosis.

3. Tobacco engenders a craving for alcohol.

4. Nicotine is such a powerful poison(this is a classical argument and appears in all the school physiology books) that one drop placed upon the tongue of a dog is sufficient to kill the animal.

Here we have four allegations. Every American, in all probability, has heard them. They are laid down as pathological gospel in our public schools. They are believed, with more or less reservation, by nine-tenths of all laymen, including millions of smokers. And yet it happens that not one of them is entirely true, and that the conclusion to which they lead is incorrect, illogical, and ridiculous.

Tobacco, it may be admitted very freely, does contain nicotine, and nicotine, considered as a beverage, is decidedly narcotic and poisonous. But it happens that the drug is seldom, if ever, used as a beverage, and that, when it enters the body in any other way, it does so in such small amounts, and the body so soon grows immune to its effects, that it does no harm whatever. Among civilized human

beings tobacco is commonly smoked or chewed or snuffed. At the start, as everyone knows, it causes nausea and other painful symtoms. The small boy, when he tackles his first cigar, becomes violently ill. But his second cigar gives him less discomfort, and his third still less. By and by he becomes entirely immune, and in the end smoking becomes his solace and earthly reward, and nicotine has no more effect upon his internal economy than so much mayonaise dressing or vegetable soup.

It is this capacity of the human body to immunize itself against poisons that make the animal and other experiments of the foes of tobacco so silly. Yellow fever, as everyone knows, is a horrible and deadly disease, and yet a man who has once had it may regard it ever after with the calm indifference with which and ordinary man regards a shave. It is the same with smallpox. In itself it is exceedingly alarming, but after effective vaccination it is next to nothing. It is the same again, with nicotine poisoning. If a man who had never smoked were to absorb a few drops of pure nicotine, it would probably kill him, but the man who has learned to smoke, and, in consequence, has gone through the small boy's experience of mild poisoning, is immune thereafter, and may take into his system daily the small quanity of nicotine which lies in tobacco smoke without the slightest qualm or fear.

Thus the dog experiments of the tobaccophobes are, to the last degree, useless and nonsensical, for the effect of nicotine upon a dog that neither smokes nor chews has no relation whatever to the effect of nicotine upon a man who has done both for years. To make their experiments logical and fair, the anti-tobacco pseudo-scientists should choose dogs that have been immunized. If they ever do so, they will discover, I wager, that nicotine, in small doses, has practically no effect whatever.

The amount of the alkaloid present in tobacco smoke varies with the manner in which tobacco is used. The leaf of the weed, plucked and dried in

the sun, contains a pretty large amount, but in the process of curing this is reduced by one-half. In good Havana cigars there is from two to five per cent. of nicotine; in very common tobacco there is sometimes as much as eight per cent. But not all of this reaches the smoker's mouth, by any means. The fire at the end of the cigar, while it volatilizes some of the alkaloid, burns and destroys more of it, and a good part of that which is volatilized is held up and side-tracked during its passage through the cigar.

Haberman, a very painstaking investigator, has found that not more than one-third of the nicotine in a cigar passes into the smoke unchanged, and that the greater part of this one-third is condensed in the butt. As a result, a single cigar introduces little more than one milligram of nicotine into the smoker's system—an amount so small that, except in the case of children and invalids, it may well be disregarded.

Pipe-smokers, especially if they use long-stemmed pipes, take even less nicotine into their mouths. The stem collects most of it, as a chemical analysis of the contents of an old pipe will show. Short stems naturally take up less of it, and, in consequence, are to be avoided by novices and by those whose immunity to nicotine is incomplete. Every sailor delights in the fact that a pipe long smoked without cleaning grows magnificently rank, but, fortunately, among human beings with more pretensions to culture, the process of renovation is undertaken at brief intervals.

As for cigarettes, it is said that the devotee of the little white tubes gets more than his fair share of nicotine. But the same effect will be produced by assaulting his air-passages with a smoke of kindling-wood, hay, or dried leaves. The white paper wrappers of cigarettes do him no harm. They are made of clean rice-paper, and while neither nourishing nor stimulating, they are too small in bulk to do damage.

That nicotine, as it appears in cigar smoke, pro-

duces all the maladies credited to it, is out of the question. We have seen that there is comparatively little of it in the smoke of an ordinary cigar or pipe, and we must remember that the greater part of this leaves the mouth again by exhalation and expectoration. If smokers swallowed smoke, or if those distinguished jurists and others who chew tobacco ate it instead, there might be a different story to tell, but fortunately the customs of civilization demand that the smoke be exhaled. So we may proceed upon the hypothesis that very little nicotine ever gets into the vital organs of the average tobacco-user.

But does this little do any damage? Does it cause cancer, catarrh, bronchitis, locomotor-ataxia, paralysis, tuberculosis, dyspepsia, Bright's disease, insanity, blindness, deafness, and all the other fearsome things charged to it? In answer I may refer to the conclusions of a physician of world-wide reputation—one of my instructors at the Johns Hopkins Medical School and a man of many years' experience in some of the largest medical clinics in the world.

"I have yet to see," he said, "in either a clinic or a pathological laboratory, any evidences to condemn tobacco in any form, not excepting cigarettes."

Possibly this man, if his attention were called to it, might admit that the specialists in ophthalmology have produced what seems to be testimony regarding the bad effect of tobacco upon the eyes of certain rather abnormal persons, but this is scarcely fair evidence in rebuttal, and so his proposition may stand. It is apparent to any one with common sense that, in studying the effects of tobacco on the human system, we must consider healthy adults of normal constitutions. There are people who can not abide cigar smoke, just as there are people who cannot abide caviar. But such folks were palpably designed by nature to eschew the weed.

Tobacco, alcohol, and weather are blamed for the great majority of all diseases that have no obvious origin. If a man is killed by a fallen derrick, even a mental healer is clever enough to accuse the broken rope; but if he dies of angina pectoris or chronic bronchitis, and his family yearns for enlightenment as to the cause of his malady, your average, old-school family doctor, with a laudable desire to be agreeable at no expense of meditation, will mention cigars and let it go at that. But such a mode of reasoning, to put it mildly, is childishly unscientific. As well say that an ardent pie-eater who dies of gangrene owes his demise to the mortal pumpkin pie.

The nervous headaches, neuralgia, dizziness, and other afflictions commonly laid to smoking are fantastic creations of extra-mortal minds. In all the literature of medicine there is no proof that tobacco ever caused any of these diseases. I have no doubt that, in a man prone to dizziness, a cigar may bring on an attack, but, at the risk of tiresome repetition, let me submit again that it is manifestly unfair to condemn tobacco because it does not agree with invalids. There are plenty of sick people who cannot eat roast beef, and there are plenty of well people with a mysterious individual antipathy to other things. But we must leave out diseased conditions and idiosyncrasies when we consider the effect of tobacco upon the normal, healthy man.

The same mistake has been made in condemning smoking out of hand because of its obviously pernicious influence upon children. Let us admit, for the sake of argument, that cigarette smoking is a bad practice for small boys. Does that prove anything regarding its effect upon grown men? I think it only fair to answer in the negative. The French and Germans laugh at us because we attempt to judge the drama from the standpoint of the young person. They point out, very sensibly, that a play which is rank poison to the mind of a girl of seventeen may stimulate her to profitable thought

ten years later when she is married and the mother of a family. It is so with tobacco. Ten cigarettes a day may injure a boy of twelve, but that is no argument against ten cigarettes a day for a man of thirty-five.

A great many eminent observers have inveighed against smoking in boys and have pointed out the indubitable fact that the average boy smoker is not so bright as the boy who does not smoke. But I rather fancy that, in part at least, they have confused cause and effect. It is my own observation that boys who are naturally intelligent and healthy and bright do not care to smoke, and that the heaviest smokers among the youth of America are those who were born with rather less than the average amount of common sense, moral balance, and respect for their elders' wishes. In brief, your typical boy smoker is a youth who was stupid when a babe in arms, and will remain stupid all his life. His smoking is not the cause of his stupidity, but merely an evidence of it. A bright and healthy boy, if he is kept away from evil companions, prefers his books and his games to cigarettes.

CHAPTER XXVIII

FORMULAS, RECEIPES AND SECRET PROCESSES OF THE TRADE

How Meerschaum Pipes are Artifically Colored and How the Color is "Set"—Correcting Must—Flavoring Tobaccos and Scenting Cigarettes

Virtually all owners of meerschaum pipes take considerable delight in coloring them naturally by the smoking process. There are comparatively few, however, who succeed in bringing them successfully to a perfect color. Failures are due usually to accidents or mistakes on the part of the smoker in the care of the pipe, frequently to impatience, and occasionally perhaps to the fact that his particular piece of meerschaum does not adapt itself perfectly to the coloring process. However this may be, cigar dealers are often requested by owners of meerschaum pipes to have their pipes artificially colored. The process of "setting" the color of meerschaum pipes and also of artificially coloring them is one that cannot be followed to a successful conclusion without a good deal of experience, and, I might say, a good many experiments by the artisan.

Cleaning.—The first stage in the procedure is to clean the pipe. The interior of the bowl should be thoroughly scraped out, and the entire pipe cleaned with the aid of a chicken feather and alcohol. After the pipe is carefully cleaned and the amber stem removed, it must be placed in an oven where the temperature is from 130 to 140 degrees. The purpose of this is to bake entirely out the wax and superfluous tobacco juices with which the pipe is impregnated.

Removing Scratches—When this has been accomplished the pipe should be taken from the oven, and

all scratches and dents removed. This is done with a little linseed oil and No. 0 pumice stone rubbed on smoothly with a piece of soft flannel. When the mars and scratches have been removed, rub the surface of the meerschaum with oxalic acid. This opens the pores of the meerschaum, after which the pipe should be set aside for three or four hours. It should then be taken up and again rubbed lightly.

Burning In the Color—Now stop up the bowl of the pipe carefully with a cork, so that it is practically air and liquid tight, and stop up the hole where the screw is with a little plaster of Paris. Then take analine dyes, ox blood and London brown, and mix them with linseed oil into a sort of paste. Rub this carefully all around the outside of the meerschaum bowl and the meerschaum part of the stem, taking care that the color is smoothly and evenly distributed. Now comes the delicate part of the process, namely, burning the color in over an alcohol lamp. By experimenting with discarded pieces of meerschaum the operator will find that eventually he can produce any particular shade that he desires.

Polishing—Next allow the pipe to become completely cooled off, after which it should be brought to a very high polish. This can be accomplished by rubbing its surface lightly with rottenstone and a little water, applied with a piece of cotton flannel.

I would not advise any novice to attempt this process the first time on a pipe of much value or one that is not his own property, as it requires considerable experience to get satisfactory results.

To "set" the color of a naturally colored pipe the same process is used, except that the dyes are not applied.

FORMULA FOR SPOTTING TOBACCO

The most effective and perhaps the only satisfactory time for spotting leaf tobacco is when the tobacco is growing in the fields. The preparation

Making Cigarettes By Hand

consists of one gallon of water, two pounds of caustic lye (soap lye) and one to two pounds of glucose. This is to be applied with a compressed air sprayer, such as that manufactured by the Dayton Supply Co., of Dayton, O. The tobacco should be sprayed with this mixture about three days before it is cut. At first the spots will be black, then green and eventually yellow to light brown. The purpose of the glucose is to prevent the spreading of the drops of liquid on the leaves. The exact amount of this ingredient must be determined by experiment.

FORMULAS FOR FLAVORING CIGAR TOBACCO

No. 1—Steep two ounces cinnamon and four ounces tonka bean, ground fine, in one quart of rum, preferably Jamaica.

No. 2—Moisten ordinary cigars with a strong tincture of cascarilla to which a little gum benzoin and borax may be added. Some persons add a small quantity of camphor, or oil of cloves or cassia.

No. 3—Tincture of valerian and butyric aldehyde, four drams each; nitrous ether, one dram; tincture vanilla, two drams; alcohol, five ounces; water enough to make sixteen ounces.

No. 4—Select gum myrhh, two ounces; extract of vanilla, four ounces; tincture of valerian, eight ounces; caraway seed, two ounces; bitter orange peel, two ounces; alcohol, half gallon; Jamaica rum, half gallon. Steep the myrrh in half a pint of alcohol for three days. Add this to the remainder of the alcohol, tincture of valerion, extract of vanilla and Jamaica rum. Then, after grinding the caraway seed and bitter orange peel to a powder, put all together in a jug and steep for two weeks, occasionally shaking; lastly, strain before using.

FORMULA FOR IMPROVING BURN

Don't be discouraged if somebody has sold you a lot of tobacco that won't burn and won't take it back. Take eight ounces of crystallized salt-petre

and dissolve it thoroughly in a gallon of luke-warm water. Case your poor-burning tobacco in this solution and watch the result.

The following formula, which has been successfully used by manufacturers to improve the burn of their tobacco, is based upon 100 pounds of leaf; Two pounds of salt-petre, one-half gallon alcohol (100 per cent. proof), one gallon port wine, nine gallons luke-warm water; all thoroughly mixed. Wrappers, binders and fillers should be thoroughly shaken so that the leaves are well separated, and then they should be cased in the above solution and left on the casing board for twelve hours. They should then be put into a case between cuttings.

FORMULA FOR SCOTCH SNUFF.

For Scotch the following is an excellent receipe:

Sixteen pounds pearl ash, five pounds sal ammonia, four pounds salt, one hundred pounds smalls and stalks.

The first three ingredients are dissolved in about twenty pounds of warm water and then poured on the stalks (finely cut) and small. This must be allowed to stand for from ten to fourteen days until it is quite hot. Then it must be laid out to dry previous to grinding.

If the snuff is required to be scented essence of bergamot, essence of lemon, or Touquin beans will give a fine aroma.

SCENTED CIGARETETES.

Perfumed cigarettes are not popular in this country, but some manufacturers find a limited demand for these goods. It is found extremely difficult to get good results by applying perfume to the tobacco itself. The latest and most effective method is to scent the boxes in which the cigarettes are packed. The perfume is applied with a very fine atomizer, the bottoms of the boxes being sprayed just before the cigarettes are put into the boxes. The odor must be used very sparingly.

PLUG TOBACCO FLAVORS

Every manufacturer of chewing tobacco has his own recipes for sauces, which he guards most jealously. There is no printed record of a plug tobacco flavor. It is known, of course, that licorice and sugar, or some other artificial sweetener, are the two chief ingredients. Rum is also largely employed. In order to get just the right combination for your particular needs, you would have to experiment yourself or employ a practical manufacturer who would be familiar with the various compounds.

FORMULA FOR SMOKING TOBACCO.

A good flavoring for a smoking mixture may be obtained by macerating two ounces of cinnamon and four ounces of Tonka beans in one quart of rum. The cinnamon and Tonka beans should be ground and the rum allowed to percolate through it, which process the rum takes up the virtue of the other ingredients. A percolator can be obtained from any wholesale drug concern. If a percolator is not available, the same effect, in a more or less degree, may be obtained by putting the rum, the cinnamon and the Tonka beans, ground, in a glass jar and allow the contents to stand for forty-eight hours, after which the rum should be strained off. Apply the mixture to the leaf with a tobacco sprayer or an atomizer.

TO MAKE STRONG TOBACCO MILD.

According to the Bureau of Plant Industry of the Department of Agriculture it is possible to remove the element in "strong" domestic cigar filler tobacco which produces the undesirable sharpness or pungency in the smoking thereof, and to render such tobacco as mild and agreeable to the smoker as a tobacco of much higher quality. The process which the Bureau used in its experiments is very simple and consists simply in spraying the tobacco with a small quantity of citric acid. "To a portion of the tobacco," reports the Department, "about two per cent. of citric acid was added

in acqueous solution by spraying, after which the sample was cased down for two days to allow the citric acid to diffuse through the leaf as far as possible. Better results could be obtained by adding the citric acid solution before the fermentation process is completed, thereby affording a better opportunity for the even diffusion of the acid through the leaf."

HOW TO TREAT MUSTY TOBACCO.

Case in vinegar sixty per cent. proof and then put into a case and keep warm for twenty-four hours. Take out and shake up well and put it back into the case and let it lay for twenty-four hours more. It will then be ready for working.

HOW TO TREAT TOBACCO THAT IS TOO GREEN.

Case in very cold water. Then put back into a case to heat up for twenty-four hours. Then take out and shake up well. Then strip it and put it back in pads, letting it lay for another twenty-four hours in the case. It is then ready for working.

PART VII

SELLING AND STOREKEEPING

CHAPTER XXIX

SALESMANSHIP—WHAT IT IS AND HOW TO ACQUIRE IT*

The Value of Personal Appearance and Poise—The Dangers of "Knocking" — How To Show Goods—Giving Exclusive Territories

My observation has convinced me that no man can become really successful in selling goods or anything else in a large way unless he possesses character, inclination, knowledge, courage, faith, enthusiasm, honesty, fidelity, loyalty, zeal and integrity. It may be said that some of these are much the same and also their necessity self-evident. Granted that such is the truth—the truth is the oldest fact in the world.

Experience—There is still another factor classed by many employers as a requisite for salesmen who seek employment with them. I refer to our old friend, Experience. Personally I am one of those who feel that experience is not essential, but since it so frequently interferes with the landing of a selling position it has almost become a requisite from the salesman's point of view.

Personal Appearance—With all the above listed requisites and experience too, a man may prove to be a dismal failure as a salesman. Without a good body and a sound mind we cannot proceed very far along the road to success. That good body interests me. When a man makes application to me for a position as salesman I look him over. His physical appearance has much to do with the conclusion I arrive at. A weakling or a sick man cannot stand the hard grind of selling. The man whose body appears well cared for, whose nerves

*This chapter prepared through the courtesy and under the direction of Mr. Earl D. Eddy, the well-known authority on salesmanship.

seem fit for any strain a mean buyer may put upon them or loss of sleep entail, has a good start with me.

In conjunction with this good body I want to see it well covered—i. e., as the phase goes "well groomed." There are all kinds of prices for clothes but it costs only forty cents to have a suit pressed. It costs nothing to brush one's hat or clean one's finger nails. I don't want a fashion plate, but I want a clean man. His person should be clean—well shaven—clean linen—well set up—you know what I mean.

Only recently a would-be seller of sales service breezed into my office, and expressed his willingness to take our line out, provided I saw fit to connect him with a contract. His sale did not even start. I guess his barber was out of town. Now a shave is a simple operation. Razors are cheap, and so is soap. Yet this man had the temerity to ask me to send him out to call on our trade and if he looked as he did when selling his own labor I shudder to think what he would look like when he commenced to sell merchandise belonging to some one else. I forgot to mention that he kept his hat on all through our brief interview.

The instance just cited is but one of a number I have experienced. The men thus offering their services have missed on the first step of approach. The idea that goods well displayed are half sold had seemingly never been heard of, and their fate was decided before they opened their mouths.

A Sound Mind—By a man's replies to questions his mental action may be accurately discerned. Here is where a sound mind comes in. If a man seems quick to grasp the points of the business, sees the salient points of the contract offered him and generally understands the proposition without undue explanation the chances of his employment are good if I need him. I never care for the fellow who has a long "hard luck" story, or tales about unfair discrimination, or who "knocks" former employers and associates. If the applicant

avoids talk of that sort just about then I feel he has that sound mind I want as well as a cheerful and kindly view-point of matters in general.

Poise—You observe that I consider his general attitude; whether cheerful or depressed; whether he wears a smile or a glum look; a kindly or a pessimistic point of view of men and things—these all go toward a decision as to whether the requisites are really there.

I hope I have now made it clear that in my opinion a good body and a sound mind are primary essentials, whereas the matter of experience is only secondary, provided the other requisites appear to be present in the man. That poise which results from the combination of a good body and a sound mind should go far toward creating those other attributes treated of in earlier paragraphs.

I always like to quote the dictionary. Let us look up that word "poise." Webster says it means "balance; equilibrium; to make of equal weight." So we'll let that good body and sound mind stand for poise and call poise the first real requisite of a salesman.

SECRETS OF SUCCESSFUL SALESMANSHIP.

Some one of the old philosophers is, I believe, credited with this bit of sound truth: "They can who think they can." Which is another way of saying that if every salesman would really expect an order from every customer there would be a lot more successful salesmen in the world than there are.

The belief in the reality of a fact brought Christopher Columbus across the Atlantic in the face of opposition which today appears ludicrous in the extreme. If some salesmen I have met had had one grain of the Columbus brand of confidence, they wouldn't wonder why they had to hunt another job. The self reliance which put our Italian friend across the seas and won the co-operation of the Spanish Queen is that same sort of confi-

dence which is winning for other men today. It's always on top and stands ready and waiting to help win the fight if given the call.

CONFIDENCE.

Confidence is very largely an attitude of mind, consequently "they can who think they can" is not merely a platitude but a strong and incontrovertible statement of fact. Confidence is positive whereas its lack is negative and positive thinking is not dependent on changing circumstances or relations. Confidence brings friendliness for it indicates an absence of fear and the man who is not afraid draws friendly thoughts from others as a result of a natural law. Therefore a confident friendly attitude maintained by a salesman becomes an asset from which he may draw dividends in due proportion to the depth of the confidence he expresses. Another thinker has put it: "Success comes in 'cans'—failure in 'can'ts.'"

Selling, in other words, is largely an attitude—a mental attitude. Successful selling, of course. The chap who expects to sell—yes—knows that he will—has the "can" idea and his chances are so far ahead of the "can't" man that there is no basis of comparison. The "can" attitude of mind reflects itself outwardly. The man who knows he is going to do business radiates confidence and carries the buyer forward to the desired end much faster than the "can't" man who probably fights lots harder for the order. The "can't" man has an attitude too but it's the wrong sort. It's negative—he looks for opposition. His attitude shows it. The buyer spots it and tightens up his belt ready for the fray. Thus the "can't" man doubles his troubles—he must sell and he must fight the natural tendency of the buyer not to buy. You may say that I repeat myself. No—there are two conditions to meet. The roused antagonism must be downed and then the sale has to be made. Had the "can't" salesman substituted the "can" attitude in the beginning, the buyer would have been a very different proposition—mentally.

Salesmen are employed to sell goods or merchandise. Being employed for that purpose it would be expected that those so employed would, as a matter of course, expect to do the work for which they are paid. What right has a salesman, if he is entitled to that title, to expect anything else but sales. That's his chief purpose in life. Really expecting an order is a lot better thinking than to repeat over and over to yourself and to the House that "the trade just won't buy now"—"everybody's holding off"—"business is rotten"—"money is too tight"—"waiting for better prices." Just about as long as you and the rest of the salesmen keep thinking that way just so long will you find just what you expect. Maybe if you'd start expecting something positive for a change you'd be very pleasantly surprised to observe that the buyers could think an order for you. It's certainly a lot pleasanter to expect success than failure and I assure you that success thoughts are much more likely of fruition than you may believe.

THE DANGERS OF KNOCKING.

Hanging on the wall of a Nebraska merchant there is a plainly printed card which reads:

"Come in without knocking and go out the same way."

The little sign is eloquent. It's short, pithy and very much to the point. Its meaning is clear and as a hint to a certain variety of salesmen, unfortunately not yet quite extinct, it should be sufficient.

I sometimes wonder why there are any "knockers" left. The whole commercial world is dead set against tactics which include disparaging statements concerning competitive goods or the houses selling same. In spite of that fact the evil continues and while it is much less than it was a few years ago, there is still enough of it to arouse my protecting sense.

If we pay the proper amount of attention to our

own business we will have about all we can attend to. It is not our business to tell about the other fellow's shortcomings. Let us look to our own and correct them. There are always plenty of improvements to be made in our own methods; for none of us have yet reached perfection. If we can profit legitimately by the other fellow's errors of judgment, very good, but let us not be a party to dragging him down. Water seeks its level and no man will ever succeed—really succeed—by doing the wrong thing by the other fellow. Be as square with your competitor as you would have him be with you. Because he does not look at it from the same standpoint does not excuse you. The "dog eat dog" policy doesn't pay in the long run, and its the "long run" that counts in the final summing up of life.

RIGHT THINKING.

Thinking is constructive or destructive—it must either build or pull down—we are either progressing or retrogressing—there's no standing still. There's movement one way or the other, and as we think so do we go—up or down. Thinking good is positive and upward while the negative reverse drags down to ultimate defeat and regret.

Salesmen have a wonderful opportunity to profit by right thinking. By virtue of their position they are daily called upon to choose between right and wrong in dealing with buyers. To give a square deal to a customer may seem a simple thing to do, and you don't stop to think it may go beyond the man you so protect. But square dealing is thinking right and right thoughts work like the ripples in a pool of water after you've tossed a rock—the circles of good keep ever widening and reach to places far beyond your expectation. And you don't have to tell your customer that you've given him a square deal, either. He recognizes your honesty without your advertising the fact. His appreciation of your kind of business ethics will cause him to advertise the

fact that he has found that he can rely upon you as a man. He'll tell you of other possible customers. Of their peculiarities, their needs, their likes and dislikes, their reputation, and other sales facts of value to the man who sells for a living. He will tell other buyers about you and about your goods. And contra—a deal that has not been on the square will reverse all of the above enumerated positive good thoughts (generated by your right thinking) into negative action, thus paying you back in the coin of "as you sow, so you reap."

"You make or you mar your success in the world by your thoughts," says our poetical friend. Success is like the building of a house. Each good thought is just one brick more going toward the final completion of the structure of memory we leave with our friends when we pass on to that land from which none have returned to tell. Shakespeare has said something about the good that men do being often interred with their bones, while the evil they have done lives after them. Let each of us do our part by our thinking to make that more untrue each day of our lives. The less wrong thinking we do with ourselves or about others the less opportunity evil has for life or supposed power to influence men's lives.

If you think you can get orders, if you are full of the belief that you can win success—so full that you are willing to put forth your utmost efforts continuously and confidently—you are thinking right and right thinking brings the right success; the honest success which is the only kind worth having. Right thinking about orders will make them meet you half way—orders the skeptical or disheartened salesman who expects failure —who thinks negatively—couldn't budge with a crow-bar.

Right thinking about men means to treat them as you would have them treat you. I prove that recipe good almost every day. In the occasional misunderstandings we have with our trade I find great pleasure in watching the efficacy of showing the other fellow that *you* think he's honest, and

that all you ask of him is that he do by you as he would wish to be treated were the positions reversed. It makes one catch his breath sometimes the way right thinking with customers in adjustments works out. It pays. It isn't a theory. It's a fact. So I am not offering the recipe of right thinking merely because it makes pretty reading. It comes back to the old adage that "Honesty is the best policy"—but you want to take into consideration that almost every man will be honest if you let him understand that *you* believe him to be so. You call out the best there is in a man when you place him on his honor and there's hardly a man that breathes who hasn't a bit of honor tucked away somewhere and which you can reach if you only reach far enough with right thinking.

SHOWING GOODS.

Orders are lost every day because the salesmen concerned fail to show their goods. It may be said that all salesmen are ever willing to show their line on every possible occasion and that the opportunity to do so is being constantly sought. I am by no means sure of it. I believe that too many fellows try to substitute talk for demonstration. They have such implicit confidence in their line of talk that they let the most powerful argument rest peacefully in their sample case or traveling bag. They think to win by logic and reasoning—strictly mental processes—forgetting that they are appealing to only a part of the factors which aid in the determination of a buyer to purchase.

There are few lines now sold in which the salesman is not given some character of sales assistance in either samples, catalogues or illustrations of some such sort as will appeal to the dealer's sense of sight at least; and sometimes to others of his senses. Yet with these aids I have known men who drew salaries as salesmen to utterly neglect such advantages, and, with a superior line to that of competitors, walk out of a dealer's store without an order. It is easily determined that men of

that type are not always successful salesmen. Once in a great while a man who can sell by pure talk is found, but such chaps too frequently embroider the truth with fictitious statements which do not stand the test of time and investigation.

Then occasionally there is the buyer who cares nothing for anything but price. Knowing what he wants, he cuts everything short by his quick impatient query: "What's your price?" I remember well a big grocer over in Kansas City several years ago. Among my sales-helps furnished me by the house, was a rather elaborate label book of which I was very proud. When calling on a new man (new to me) I'd spring this label book very early in the game, and, as I turned its numerous pages would extol the merits of the various brands and varieties disclosed. As usual, I followed that plan and had gotten over about two pages when my man jumped me with: "Say, young fellow, I'm not buying pictures, I'm buying goods. Show me the *goods*." I had no samples with me and an interview which I had sought for days was thus brought to an ignominious end. Before I could get my man down to cases again, I was transferred and we've never sold him a dollar's worth of goods. But I sold lots of goods afterward as a result of that little lesson.

Comparison—without "knocking"—of one line of goods with another makes the most powerful selling argument a salesman can muster—provided his line can stand the test. The courage to meet the other fellow's goods on their merits does not weaken a salesman with the customer. The fact that he has the courage of his convictions will have a positive effect upon the buyer—even though he may not let you see it. It is always well to remember that the goods the dealer already has on hand represent his previous buying judgment and seeking permission to make comparisons of what you have to offer with what he has previously, bought, savors of criticism of his judgment. There is nothing most merchants are more proud of than their ability to buy well, consequently the request-

ed test must be put forth with tact and cleverness in order to get it over.

KEEPING YOUR HOUSE POSTED.

While I'm speaking of this house-to-salesman-service may I also remind salesmen that reciprocity is good business? Salesmen are the eyes of the house. They are out on the firing line. They hear about the new models; the improvements, the changes in selling plans, the new brands and varieties; all sorts of information, *ad infinitum*. How do you expect the house to know all these points unless you report details? Do you think they hire a clairvoyant by the month or that they can smell these changes? If you sell a line where samples of competitive lines can be readily purchased and shipped to the house—do so until they tell you to stop. I've known salesmen to send loud wails and excuses for not getting business because somebody else was offering something new or pricing items a bit low and then fail to name said price or to send a sample of the competitive item in to headquarters and then curse things in general because the house could give them no satisfaction or assistance or advice as to how to act under the circumstances. Just reverse the situation and figure it out for yourself. Back up your statements with facts instead of fairy tales and get the benefit of the service your house is ready and willing to give you.

GIVING EXCLUSIVE AGENCIES.

To be exclusive is the desire of a good many people in this little old world of ours. It's a species of selfishness—the idea of having something the other fellow hasn't and possibly cannot have. The ability to debar from participation in the enjoyment of some pleasure seems to be a more or less pleasant sensation to the average man, so the merchant who wants an exclusive agency is only following an instinct which seems to be pretty well distributed. Therefore, in suggesting an ex-

clusive agency to the retailer a salesman nearly always strikes a responsive chord in the merchant's mind and advances considerably closer to the desired end.

An agent is a person or thing that acts or has power to act; one intrusted with the business of another; a substitute; a deputy. Now when a retailer becomes the exclusive agent for a certain article or brand he becomes in fact the representative of the manufacturer or distributor for a certain definite territory set forth verbally or in writing. The placing of the agency is usually contingent upon the volume of sales the retailer can make for the goods; sometimes a certain definite volume of business is demanded in order to control the agency. To me this appears to be eminently fair and proper and a salesman will dignify and strengthen himself and his line where he demands a certain specified volume of business per annum in return for the retention of exclusive agency rights.

The exclusive agency on some good line of merchandise or some particular item is an asset to the merchant. Assets are defined as "property in possession or money due, as opposed to liabilities." You notice that an asset is indirectly defined as money. Now why should a salesman hand a merchant money unless there's some return? The return should not be indefinite or intangible. If a manufacturer is putting out first class goods or if a distributor is backing up his brands with a water-tight guarantee the exclusive handler of such merchandise in a specified locality should pay for the privilege in the volume of business he is able to control through possession of said agency.

Now I'm sure some of my retail friends feel that they are doing the favor by accepting the agency. Candidly I don't agree with their point of view. From my side of the fence I feel that the manufacturer or distributer who makes or sells worthwhile merchandise and backs said merchandise with all sorts of dealers-helps is most assuredly the

fellow who's doing the favor. Not that I'm losing sight of the fact that the retail distributer is the most important connecting link between manufacturer and ultimate consumer. But I do maintain that when it comes to placing exclusive agencies on *good* goods the man behind the label is doing more than the man behind the counter. He is choosing a representative and, being proud of his product, cannot be too careful in making that choice. He is handling the selected retailer money in the shape of an asset which is frequently counted in the good-will of a business when the retailer figures on selling out to somebody else. The agency for any one of half a dozen of the lines advertised in your trade paper could well be counted as worth from $100 to $1,000 per year in the business it brings into the selected retailer's store for other lines sold incidental to the sale of the agency line. In groceries the agency for some reliable line of canned fruits and vegetables is something retailers almost fight for—dependable canned foods make satisfied customers. Agencies for stocks, underwear, stoves, knives, cigars and so on down the line, all have their good-will value in figuring the assets of a business and assets are money.

Now then, having determined that an exclusive agency is an asset and therefore money, the salesman has the right to figure that since he is paying out the equivalent of cash he should have something in return. He may be said to be buying representation giving in lieu of cash, an agreement which confines the sale of his line to the selected retailer. Now our salesman, when he goes in to buy a suit of clothes or a pair of shoes seeks quality. There is quality among retailers as well as among shoes and suits of clothes. If it's a good rule in one case, why not in the other? There's a consideration, consequently a saelsman should seek quality in the selection of the agency for his line. In this selection he displays ability to buy instead of selling for he must buy the merchants good-will with his exclusive agency proposition

and sell the merchant the goods on their merits. If a salesman gives the exclusive agency to an unworthy retailer he does more damage than good —for a brand is usually judged by the company it keeps. Let the wrong sort of a store have the agency for your goods and see how the better store declines to consider the agency when offered.

IN CONCLUSION—BE HONEST!

There are various gradations of dishonesty, and some of us are more honest than others, and in proportion to the degree of honesty which we measure up to do we succeed. Sometimes it may look as though dishonesty pays, but remember that success is not of necessity a thing of money and place. A clean mind and a clear conscience—can any man make a greater success than to win possession of those two? The man who has won success by other means has an ill-won bargain, and no one knows it better than he; though from the front he throws, the world may never know what his conscience tells him. He pays the price for all he has.

Salesmen have the greatest opportunity to benefit from being just plain honest. I think of no profession or line of endeavor where the rewards of square dealing are more certain, nor the certainty of exposure more sure if the reverse policy is practiced. There are infinite opportunities for the practice of plain, old-fashioned honesty. Some say the latter-day honesty is much better than the old fashioned because the world is learning its lesson and is much more honest than it used to be. "Let the buyer beware" is being exchanged for "Let the seller beware." The seller has to beware of the pure-food man, the fuel chemist, the competitive test, the service man and all the other developments of modern merchandising. The purchaser has built a line of defenses calculated to repel the old *"Caveat emptor"*—he has become "beware" to such a degree that dishonesty is more dangerous now than at any period preceding.

Every hour makes its practice a trifle more futile. The *"Guaranteed"* age is with us, and guarantees are backed by veritable billions of money.

Then when it comes to honesty with the customer the salesman has his success in his own hands. Once let a salesman earn a reputation for dependability (which is nothing more or less than honesty) his hold on his trade is cemented by the strongest bonds known. Even price cannot win out against such a reputation, assuming that quotations are kept within reasonable competitive bounds. The salesman who is dishonest with his customers runs a short course; even shorter than with the employer. The salesman's customers will be the first to learn of what stuff he's made. Then they'll tell the house or quit trading. Sales decrease; complaints of misrepresentation come in; exit salesman.

Dishonesty is disloyalty. Loyalty to employer and to customer brings out a certain result. The contrary course may be relied upon to bring failure and dismissal. Loyalty will take its toll just as surely as will disloyalty. The toll loyalty collects will be success as exemplified by better place, larger compensation and, above all, a clear conscience—the satisfaction of a work well performed —and what greater reward can there be than that?

CHAPTER XXX

HOW TO MAKE A CIGAR STORE A PAYING PROPOSITION

Importance of Keeping the Place Clean, and the Window Attractively Trimmed—A few Pages of Advice Based on Experience

In selecting a store location, do not underestimate the advantage of being on a level with the street. A few steps down or a few steps up, while they do not either make or spoil a location, militate to some extent against its value.

In the Summertime, keep off the flies. A screen door is a good thing, but electric fans are better, if you have enough of them. It is always advisable to make the entrance to your store as easy as possible.

Good window displays changed weekly are half the battle. Nine times out of ten it is the window that introduces the customer to the store.

Economy in light is in the end an extravagance. The cigar store must be brightly lighted both day and night. There should be no dark corners in it. If you have awnings in front, see that they are hung high, and do not fail to raise them entirely so soon as the movement of the sun will permit.

Dust is a pernicious enemy of good business. A customer who has to blow dust from his box of cigarettes or can of tobacco may never return. Sweeping powder should be used liberally in a cigar store, and a half hour after the sweeping is done the duster should be applied. Windows and showcases should be wiped daily and cleaned often, especially in dry weather.

Never try to hurry your customer. Give him plenty of time. If he is hesitating between two

brands or two articles and you are busy, excuse yourself politely until you have waited on someone else and then return to him.

It is a good thing to keep goods under glass as much as possible, but do not neglect an opportunity for good display on this account. Do not be afraid to risk the soiling of a pipe or a few cigars now and then. A dealer can always get his money back out of shop worn goods by the special sale or job-lot method.

Do not run your wall shelves up so high that the goods cannot be reached readily. There are better ways of saving space than this. If you are short of space leave the out-of-the-way places for reserve stock, but always keep a good supply for immediate use within easy reach of the hand.

In small stores, plan the arrangement of counters, etc., with a view to giving the customers as much space as you can to walk around in. It is sometimes surprising how much you can make of a limited space when you take time and care to study the question.

In buying, remember that it is easier to overstock than it is to underbuy. Cigar and tobacco salesmen, as a class, are good men, honest, hard working and polite. They should be treated courteously and given the same consideration that you would expect if your positions were reversed. At the same time, the dealer must remember that the ambition of most salesmen is to sell large bills, and the buyer should be careful not to be persuaded against the dictations of his own judgment and knowledge of his business affairs.

At the same time, the cigar dealer must remember that every time he runs out of a standard brand, he is giving his business a black eye.

A want book should be kept in every cigar store, and entries made in it before supplies are entirely exhausted. A card index is perhaps better than the ordinary want book. The card must show the stock on hand at short period inventories, new stock received when any is added, and stock sold. Do not forget that

A Particular Customer

turning away a customer through not having the brand he calls for means not only the loss of the profit of the sale, but in most cases, the loss of the customer.

Read your trade paper, and if you are an employer or manager, see that your clerks read it. Frank Farrington, the well-known authority on retail store management, says: "I have found trade journals exceedingly useful and reliable. I would far rather depend upon the trade journal than upon the traveling man. The trade journal holds no brief for any concern. It is open to all. It is just as much interested in getting hold of good new things about which to advise its readers as its readers are in hearing about the goods. It will keep any retailer posted if he will give it a chance. Money invested in such papers is productive of the best return you can get for such a small investment."

Never take a cent over the counter without saying "Thank you." This is a little thing but it means much. No matter how busy you are or how many times you have to do it, say "Thank you." It pays every time. Receive every customer pleasantly but not too cordially, unless the acquaintanceship warrants more familiar greeting. The best general rule is to be polite and cheerful to every one. If you know the name of the customer, always address him by it. We all like to be called by name.

If a customer calls for something you have not got, don't make the mistake of telling him it is not good. While he may not outwardly resent this, inwardly he feels that you have disparaged his judgment; and you have done yourself no good. You may say that you have had no calls for it recently, but even this must be tactfully expressed if you would keep his good will.

Give every man his money back if he want's it. Sometimes it may come hard but it pays in the end. This has been tried and proven.

When selling cigars at retail, there are many little facts well-known to most retailers of experience but valuable only if told to customers. Most dealers are

apt to take it for granted that customers must have the same knowledge as themselves, but were they to take the trouble to communicate bits of information at opportune moments it would be found that people do appreciate occasional tips.

When cigars do not draw well, press them carefully at the tuck to make them burn freely. Sticking a knife or pin in cigars from the head seldom helps the drawing. Sometimes smokers have cut off too small a bit of the tip. Turn the bad burning side up when cigars burn to one side, and then blow through the cigar several times. This usually regulates any unevenness in the burn.

When placing cigars in a cigar tube or holder it is always best to moisten the tip of the cigar before putting it into the tube. This causes the cigar to adhere to the holder, and also softens it sufficiently to make it fit well and insures a good draft.

When placing cigars in a pouch or pocket, turn up the tuck. If they should break a little on this end it will affect the smoking less.

When opening a new box of cigars for retail purposes, start it; that is, take out a cigar or two. Experience shows that unless a customer is actually a witness to the box being opened, he is shy about starting a new box.

Keep a cloth handy to wipe cases promptly. Dust means dirt to the customer, so keep showcases clean.

Don't hesitate to reserve a box of cigars for any customer, if color suits him. He may be a crank, but you'll make a friend by watching and catering to his moods. Try to remember his brand, but don't spring it on him when he walks in with friends. Perhaps he wants something better.

Shift positions of cigars stored in cases so that all get equal benefit of the moistening apparatus.

Don't lay boxes of cigars on their sides, as this position is apt to spoil ends.

About pronouncing names of brands, sizes, etc., especially Spanish or other foreign names, policy dictates that you let customers call them what they will. Don't air your superior knowledge. It's expensive.

Pay attention to kicks. Investigate them all. Sometimes standard goods might, through some accident, be wrong. It's to your interest to know.

Break seals or stamps when handing little cigars or package goods out to customers. Little courtesies like this are generally appreciated.

CALLING A CUSTOMER BY NAME.

Here is some good advice given by a Chicago cigar merchant on the importance of calling a customer by name:

At thirty-eight I am the owner of a string of fifteen cigar stores, every one of which is making money. I have my good home and a motor car and a mighty nice income—and I owe most of it to one little detail I determined on when I first started in business and to which I have adhered ever since.

Eight years ago I started in the cigar store business. Before that time I had been a clerk, saving a little out of my wages every week against the time when I could start in for myself, and learning everything I possibly could about the business. I had studied the ways of customers, their likes and their dislikes—and I had discovered one great fact; the usual customer, when he enters a cigar store, likes to be known. He likes to be called by his name. Flattery, it is true, but all men are susceptible to it.

Therefore, when I went into business I made up my mind that no man was going to come into my store the second time without my knowing his name. I tried the rule and found it aided me. When I saw that some man was coming to my store two or three times in succession I made it a point to find out his name. Sometimes it meant a little expense and a good deal of trouble, but I did it just the same. And the next time he came I called him by his name and greeted him. I could see that the trouble I had taken pleased. It flattered the man to know that I was interested in him enough to want to know his name, and soon, instead of being just a casual customer, he became a real one. More than that, he became a friend of mine and booster

for my business. The result was that when he saw a chance to send trade my way he did it. And as soon as that trade came I found out the name of the new man and used it to advantage.

Within a year or so there came the time when I could start the second store. That meant that I must put the bulk of the business of one place in the hands of another. And so, when I selected my man, the first thing I drilled into his head was the order that he must find out the names of customers and use them whenever he had a chance.

CHAPTER XXXI

HOW TO KEEP CIGARS AND TOBACCO IN GOOD CONDITION

The Necessity of Conserving the Natural Humidity of the Goods—Proper Degrees of Warmth and Moisture—The Rotation Plan

One of the most successful cigar merchants in the United States once said: "The keeper of a cigar store should watch his humidor first and his money drawer afterwards." There can be no doubt that if the stock is well looked after, the cash register will take care of itself. Given stock in good condition, polite and attentive service, thorough cleanliness and attractive window displays, and the dealer in cigars will find himself on the highway to success.

But the most important of all of these is the condition of the goods. You may get a customer in your store through an inviting display of goods in the window, and you may please him by the neatness of your establishment and courteous treatment across the counter, but you cannot hold his trade and make him a permanent customer unless you have given proper thought and attention to the keeping of your cigars.

KEEPING GOODS IN CONDITION.

The art of keeping cigars, or any other manufacture of tobacco, in condition is one which is not amenable to any rule, or set of rules, but is based upon common sense and surrounding circumstances. The basic idea, however, is to keep the goods in an atmosphere as nearly uniform as possible, with the thermometer in the neighborhood of 65 and the hydrometer not over 75. As uniformity of temperature and humidity is the principal object, the doors of the case, cabinet or vault should be kept closed as constantly as prac-

ticable. In extremely damp sections, care must be taken against the cigars absorbing too much moisture, and in extremely dry climates, moistening devices must be applied. The chief desideratum is to maintain as little fluctuation in condition as possible and to retain the natural humidity of the tobacco.

It goes without saying that cigars should be unpacked from the cases and placed on the tables or shelves in the humidor as soon as they are received. Assuming that the goods are in proper condition when they arrive from the factory, the first consideration should be to see that they are not allowed to dry out. Direct currents of air should be carefully avoided. It is well to provide humidors with ventilation, as fresh air is always advantageous, but this ventilation can be on a very moderate scale and should be so arranged as to prevent the currents from falling directly upon the goods. Stoves, radiators and all kinds of artificial heat should also be kept at a distance. With proper care, the natural moisture of the goods can thus be conserved.

If, however, through some inadvertence or unavoidable circumstance, the cigars become dry, the dealer must take care that they are not brought back to their proper condition too quickly. It is this over anxiety to recondition the cigars that causes the greatest trouble. In remoistening cigars too hastily the outside wrapper stretches and expands, because it absorbs the moisture more readily than the filler. The consequence is that the wrapper has a tendency to loosen, and when smoked the cigar "leaks air." The process of bringing dry cigars back to their normal degree of moisture should occupy, as nearly as is practical, the same length of time as was required to dry them out. The humidity of the container should be raised very slowly, so that as the goods absorb the humidity the inside of the cigar will increase in moisture along with the outer leaves. Thus, the danger of "blistering" the cigar is obviated.

In this connection, it should be noted that small boxes of cigars lose and absorb moisture more readily than the larger packages. The careful cigar dealer

will take the trouble to keep his packages of tenths nearest the moistening apparatus, his twentieths farther away, and his fortieths as far from the source of humidity as possible.

Cigars should be removed from the humidor only when they are ready to go directly into the case. There should be no intermediate stage of lying on open shelves or in exposed places about the store. Once in the showcases, the effect of overhead moisture must not be underestimated. Cigars, sold from the case are always sold from the top of the box. That is to say, first the upper layer, then the second, and so on to the bottom row. As the upper strata of air are denser than the the lower strata, it is logical that the upper layers of cigars in the box are more charged with moisture than the lower ones. This is as it should be, in order to have the bottom layer in good condition when it is reached for vending. The man behind the counter should always be careful to sell first the cigars that have been longest in the case, so far as is consistent. Often a dealer has two or more boxes of the same brand and size in the case and in these instances he should always try to hand out goods from the box that was first to leave the humidor.

In the matter of cigarettes, tobaccos, etc., this principle of rotation should be carefully adhered to. Tobaccos are so generally packed nowadays in tins or other moist-proof wrappings that they are well protected from meteorological influences. Cigarettes, however, are quite as susceptible as cigars. For the benefit of the cigarette it would be a good thing if airtight wall cases were used; but these are not practicable, and the next best thing is to keep the goods moving out *in strict rotation.* When the compartment runs low and it is necessary to put in more cigarettes, these packages should be put in at the bottom so that those already in the compartment will be handed out first. Care should be taken to have not more than a day or two days' supply of cigarettes exposed at a time. It is quite as necessary to guard against too much moisture as too little moisture in handling of cigarettes, for if these goods absorb too much water, the tobacco discolors the paper and renders them unsalable. Ci-

garette stock should always be allowed to remain in their original cartons until as near the time of sale as possible.

The best way of removing mold from cigars is by the brisk use of a camel's hair brush. Sometimes a soft flannel or wooden cloth proves effective. Under no circumstances should alcohol be employed for this purpose, as it invariably affects the flavor of the cigars.

CHAPTER XXXII

A HOME-MADE HUMIDOR AND HOW TO BUILD IT

By Following these Instructions and with the Aid of a Local Carpenter a Serviceable Vault May Be Installed Anywhere

There are many cigar dealers in the smaller country towns whose trade in fine goods is of greater volume than can be properly cared for in an ordinary portable receptible built on approved humidor principles; yet it is not extensive enough to warrant the expenditure involved in having an apartment on the premises fitted up by professional constructors of stationary humidor equipment. There is a constant demand from dealers of this sort, asking if there is not some simple plan of general utility on which storage rooms, serving all the purposes of the more elaborate and costly kind, can be—at least comparatively—inexpensively constructed by local mechanics.

To construct the simplest, least expensive kind of a humidor storage room there must be thorough ground drainage and perfect ventilation—free circulation of air on all sides—to start with. Avoid a basement if possible, and, if constructed immediately over a basement, be alert to see that the latter is at all times in clean condition, as well as thoroughly drained and ventilated. These hygienic conditions are as necessary in the space under your storage room as they are on the floor it occcupies.

The underlying conditions being right, lay, on a thick wood floor, a layer of clean sharp building sand, leveled off and beaten down to a depth of two or three inches. On this sand bed lay, on their flat side, one course of thoroughly burned brick, as close together as possible, and on this place a finishing layer of concrete at least two inches deep. Finish off to a smooth

surface. This, ordinarily, provides a satisfactory floor.

If a basement with modern drainage, etc., is impossible, the floor of the humidor should be elevated at not less than two feet—and more if possible—above the surface of the floor it is built upon, so as to insure circulation of air and provide against damp. If fully three feet of space cannot be had between main floor and humidor floor, where there is no basement, a double layer of wood, with roofing metal between should be used, and then follow with sand, brick and concrete, as already indicated. If concrete is not available use a double layer of brick, laid transversely, and cement the joints in each layer in the upper and lower layers as much as possible.

For the walls, wood, or wood and glass in combination, have been used for the greater part heretofore, and are still being used. But, because of danger of wood becoming musty from moisture, and imparting the taint to cigar boxes, and thence to the contents, modern views favor concrete for the entire construction, including the ceiling, as far as possible. But, if wood is used for walls, subwalls, of the same material as the concrete or brick floor, should be carried twelve inches above it and topped off with a double course of roofing slate, laid in broken joints, with waterproof cement between the courses. On this slate course lay, also in waterproof cement, wooden sills to carry the scantling in the framework of the walls.

Doors and walls should consist of four layers of non-odorous, thoroughly seasoned lumber, one inch thick. Unless the room is to be ornamental as well as useful, undress lumber is all that is necessary. As in the brick and slate work, here, too, broken joints should be secured. For the ceiling one less layer of lumber than is put in the walls will be enough.

Wood shelves, if used, should also be of non-odorous seasoned wood, and the stanchions supporting them should not be sunk in the concrete floor, as in some early types they have been, but laid on light sills or scantling resting on moisture-proof supports, not less than twelve inches above the floor. If glass enters into the wall construction, double plates, with air space

between, on the storm-window order, should be used, the object being to obtain a steady, uniform temperature as little susceptible to change as possible. The rooms should be in a part of the building liable to as little atmospheric changes—artificial or natural—as possible.

Formerly a concrete floor, wetted as often as occasion was supposed to require it, was thought to give sufficient moisture; but this proved to be a mistaken idea, unless where goods do not remain a long time in storage. Floor moisture does not rise high enough to help stock in the upper shelves, and overhead devices have been resorted to. Felt and paper pads (in frames and cylinders), sponges and devises of terra cotta, easily attached to and removed from shelves and walls, as thermometer and hygrometer—subject to local climatic conditions—indicate, have been resorted to. But the utmost care and attention is necessary under all circumstances to secure satisfactory results.

If concrete is available, by all means use it, throughout as much as possible. The concrete ceiling should be so arranged that water, controlled from below, can be applied to it until moisture has been absorbed to a degree just short of the dripping point. This will completely insure overhead moistening. This concrete ceiling should be accessible from the floor above, or suspended from it somewhat in the way the Subway station platforms are built. It has been demonstrated that exposed metallic surfaces, especially copper and zinc, produce chemical combinations that in time affect cigars no less injuriously than the musty odors of wood, paper, felt and other absorbents, and anything that will lessen the compulsory use of all these substances is a great desideratum. Of course, with perfect cleanliness observed, more or less satisfactory results can be had from all of them.

If concrete cannot be used in walls and ceiling then sliding frames and cylinders—easily attached and removable—containing moistening pads, must be attached to walls and shelves. The thermometer should range between 60 and 65 degrees Fahrenheit. The hygrometer, according to the natural moisture incidental

to climate and the condition in which cigars are received, should indicate anywhere from moist to very moist, say, 50 to 75 degrees. Observation of the condition of cigars in the chamber must be made constantly as a guide for moisture. More moisture is needed in the Fall and Winter than at other seasons; also more is required in high elevations than along the sea coast.

When the moisture becomes too great, if old-fashioned pads are used, these should be removed. In case concrete, overhead or below, is used, it will dry off quickly under the action of a current of air (once the flow of water upon it ceases) and an ordinary electric fan located high up and set in motion in the rear of the room is all that is needed to do this. Ventilation may be obtained by slides arranged in the walls or through the open door of the chamber itself. Any house building contractor can put up a plain useful structure by following the ideas suggested, and if anything ornate is desired a local cabinetmaker may be called in to give it the finishing touches in outside and inside trim. Almost any drug store or mathematical instrument dealer will supply a thermometer and hygrómeter; a city jobber certainly will.

In closing, it may be added that during the past few years a number of clever contrivances have been devised which considerably simplify the problem of maintaining a desirable condition of atmosphere in cigar vaults, and anyone contemplating the construction of a storage room would do well to investigate these devices.

CHAPTER XXXIII

HOW TO SELL PIPES AND HOW TO REPAIR THEM

Ideas for Renovating Stock—Selling by Numbers—The Care of Pipes and how to Clean Them—The Repair Shop

Once each year, preferably around the first of January, and for a period of several weeks, it will pay the retailer to buy sparingly and take the opportunity to gather up all accumulated odds and ends and dispose of them.

At this time the dealers may find pipes that have been exposed in windows or as samples on display cards that show dust or discoloration from the sun shining on them. Naturally, these goods are not very salable. To restore them, rub briar pipes with a little almond oil applied with a soft cloth. On rubber stems the lustre can be renewed by polishing them vigorously with Venetian (French chalk). Neither of these articles are expensive. A few cents' worth will answer for the average store.

For polishing metal ornaments on pipes use stick rouge—that which jewelers use is best and handiest. By laying several ply of soft cloth together and tacking to a flat stick of wood, a buffer can be cheaply made, and its use will accelerate the polishing.

TO AVOID BREAKING PIPES.

Nine men out of every ten break their pipe stems by tapping pipes on their boot heels or against some other hard object. The dealer can make many friends by cautioning purchasers to avoid this practice. The smoker should grasp the bowl of the pipe only, when knocking out ashes.

A word of advice about clay pipes and other com-

position pipes. They should be grasped so that the metal band is made to bear the strain when pipe stems are removed or inserted. This avoids breakage.

SELLING PIPES BY NUMBER.

An Indiana authority on store keeping contributes the following:

"I want to say a few words in regard to increasing the sales of the retail pipe business. The idea, though not absolutely original, has been used in other lines but not to my knowledge in the pipe business.

"We have two small show-windows on the main street and principal block of Gary. In one window we built two pipe racks, simple affairs consisting of strips of wood with a row of nails about two inches apart on which we stood the pipes. On each nail was placed a little ticket about one and three-quarter by three inches, on which was printed the following:

ASK FOR NUMBER 312, 25c.

the price in red and the other wording in black ink. Now as the customer enters the stores he says, 'give me one of those pipes No. 312.' We go to our wall case on which is displayed a sample of each pipe in stock, and in a compartment underneath the pipe case are stock boxes corresponding in number to those in the window. And we sell right out of the stock boxes.

"The first day we inaugurated the scheme we sold one dozen pipes from the window because they asked for a certain number, and it has improved the business daily outside of making a pretty window display."

THE SMOKER'S CARE OF HIS PIPE.

Before smoking a new briar pipe, the interior of the bowl should first be wiped out with a cloth to remove all dust and then should be thoroughly dampened.

Breaking It In.—Before the moisture evaporates, the pipe should be filled and the tobacco should then be lighted evenly, the smoker being careful not to

burn the rim of the bowl with the match. When the tobacco is all consumed, the ashes should be allowed to remain undisturbed until the pipe is thoroughly cooled. They should then be emptied, but care should be taken not to scrape the surface of the bowl in so doing. By observing these precautions, a thin coating of carbon can be formed, which prevents the wood from cracking. After a half dozen smokes, the rule of removing the ashes should be changed and they should be empted promptly after the smoke is finished. The smoker should always blow through the bit after removing the ashes, for if this is done, the smoke channel will never become plugged.

Cleaning the Pipe.—The bowl of the pipe should never be cleaned out with a pointed instrument like a pointed knife blade or scissors, as by repeated performances of this kind, a hole is gradually drilled through the bottom of the pipe. Of course, a pocket knife may be used for this purpose, but great care should be taken not to let the point strike against the bottom of the bowl. A pipe should always be allowed to cool and dry before being re-smoked. No pipe smoker is perfectly equipped without a supply of pipe cleaners and one of the various spoons made for removing the ashes.

Coloring a Meerschaum.—To properly color a meerschaum pipe, an upper or false bowl should be used persistently until the desired color has been attained. The principle of this is that when the tobacco is smoked in the bowl itself, the rim of fire, when directly in contact with the bowl, stops the coloring process. The old idea of encasing the bowl in chamois is disproved. If the smoker is anxious to avoid the possibility of blotches formed by the finger tips, the pipe should be held in a light handkerchief or else by the stem.

When a smoker changes his brand of tobacco, he can never judge the new brand fairly by the first pipeful if smoked in a pipe which has been used for some other kind of tobacco, as the accumulation of oils from the preceding blend affects the flavor of the new

brand. Seven or eight pipefuls of the new brand must be smoked before its true flavor can be determined.

HOW TO CLEAN CALABASH PIPES

The cleaning of a calabash pipe is not a difficult operation, provided the pipe is handled properly. Like every pipe, the calabash should be cleaned before smoking, not immediately after, while the pipe is hot. Ordinary pipe cleaners should be used. Care must be taken to keep the opening at the bottom of the bowl free, and this should be done with a soft cleaner instead of the metal probes and scrapers, which are liable to crack the meerschaum lining. The calabashes fitted with removable bowls may be cleaned with less trouble than any other pipe on the market. With the ordinary type of calabash pipe, where the bowl may not be removed, the cleaning process is a trifle more difficult, but by removing the bit and taking out the accumulated ash and by keeping the opening from the bowl into the stem of the calabash clear, the smoker will have little trouble in maintaining his pipe in good working order. Alcohol may be used with impunity in cleaning a calabash.

HINTS ON PIPE REPAIRING.

Pipe repairing is a profitable part of the cigar retailers' business, yet for various reasons the average dealer does not cater to this trade. Of course, there are lots of pipes broken in such a manner that only a professional pipe maker can put them in order.

THE TOOLS FOR A SIMPLE OUTFIT.

You will need for the simplest repairing the following outfit: A flat file, a three-cornered file, a pair of pliers, a few pieces of stiff wire, a small gimlet, some sand paper, a small quantity of plaster of paris, and a little gum arabic. This equipment will cost less than one dollar, but will work wonders if used intelligently.

You will also require a very limited stock of pipe bits (your jobber or manufacturer from whom you

buy pipes can supply you). A small number of each of the more popular styles only is necessary.

Removing Broken Screws.

When pipes are brought in to be repaired, usually the remnants of the screw or the plug are left imbedded in the stem of the bowl. Your three-cornered file if pushed into the remaining bit of screw or rubber plug and turned carefully will usually result in the part coming out easily. If the screw has been cemented in, this method will not abstract it. Don't attempt to force screws out. A broken pipe will be the only result. Now as to plugs: If the first trial does not bring it out, frequently, and after several attempts, each of which loosens the plug a little, it can be removed. But where plugs are fastened firmly, if the gimlet is screwed in, a firm pull will generally dislodge the obstinate bit of rubber. The writer has removed thousands of plugs by these simple methods and only remembers breaking two pipes. But to be on the safe side always tell the customers before attempting a job: "This is taken out at your own risk. We are not responsible for breakage." Where pipes have no metal bands they are liable to crack, otherwise risk of breakage is small. Heating the pipe at the metal band will aid in removing parts of rubber plug, as it softens the rubber.

To remove screws cemented into pipe or amber: Heat a wire and insert into screw. Several applications will usually result in softening the cement sufficiently to permit ready removal of the screw. To set screws in meerschaum or amber: Mix a little gum arabic with plaster of paris and add enough water to make a paste. Keep the gum arabic and plaster of paris ready in separate small bottles and mix in a saucer or in the empty top of a tobacco tin as needed. Apply a small quantity to screw and after adjusting it in required position allow it to set for a few hours to harden thoroughly.

About Bits and Plugs.

When fitting rubber bits and plugs (the part that fits into the pipe) if they are too large, they can be

reduced to the proper size in several ways. They can be filed down by using care when filing that the bit is turned constantly to keep it rounded, or they can be sandpapered down. This makes a neater job. To do this, hold sandpaper in one hand and twirl the bit with the other until it is sufficiently reduced, or one may heat the plug slightly and it can then be forced into the hole of the pipe. Still another method is to ream out the hole of the pipe. All these methods are good sometimes. A little experience will qualify one to judge of the best way to work.

A Place For Everything.

Where pipe repairing is made a specialty a drawer should be reserved for finished work and subdivided into compartments. For the average cigar store a division of the alphabet into groups of six letters will suffice. This facilitates speedy finding of work when customers call for it. A record book should be kept, giving date when repair was left, price (cost of work in cipher), description of article, etc., thus enabling one to keep accurate tolls on whether this department pays or not.

The easiest way to keep a large variety of pipe bits is to place each style in a small cardboard box and sew a sample on the box for exhibit. Use boxes of a uniform size and appearance.

REPAIRING MEERSCHAUMS AND FANCY GOODS.

In England, where the pipe is supreme, the art of repairing these goods is highly developed. We therefore borrow from the *Cigar and Tobacco World,* of London, some additional hints for this chapter.

Small repairs are easily done by most people, and fill up spare time pleasantly. In the large cities it is better to place all repairs but the most trifling in the hands of a professional pipe repairer; but to the smaller-town dealer that means cost of postage and loss of time; yet that is unavoidable with customers' repairs, unless it be simply replacing a screw or re-cementing a mouthpiece to the stem. There is always the risk of breakage in attempting that for which the

proper tools (notably a lathe) are not to hand. Of course, this does not apply so forcibly to one's own stock goods, but should a customer's pipe—perhaps a well-colored meerschaum—be broken, he will be very much annoyed, and probably demand three or four times the original cost.

The Tools For Repairs.

Two flat safe-edge files, fine and medium, a jeweler's fine three-square file, three square bradawls or "rimers" (for enlarging bores of screws, etc.), a burnisher of some kind, a small pair of pointed pliers, a piece of stout copper wire, and a stiff knitting-needle will be all that is likely to be required. Then there are the materials, viz., two sheets of fine sand paper, Nos. O and OO, a small tube of liquid glue, a bottle of liquid gum, and some fresh plaster of paris; we mention small quantities because both of these ingredients for making cement should be always fresh as, should either be "sour," the cement will not set. About three dozen silver bands of assorted sizes, two gross of assorted bone screws, of which some should have shoulders and a few dozen tiny pins for fastening pipe-case hinges, will complete the equipment.

Having unscrewed the mouthpiece and probably found something projecting from the stem, the next move is to ascertain what that "something" is. If it be a broken pipe brush or a piece of string, there is unlikely to be any difficulty in pulling the same out with a pair of pliers; but if it be cane, straw, grass, or anything equally fragile, by no means try to pull it out, or it will break and increase the trouble. If any difficulty arise in removing the obstruction, the best thing to do is to replace the mouthpiece; clear the bore at the bottom of the bowl; stop up the mouthpiece with a wax match and the bowl with a cork, having previously half-filled the bowl with methylated spirit, then fix the pipe so that the bowl remains upright, and leave it for twelve or eighteen hours. It will then be found that the spirit has disintegrated the oily particles, and may thus render the obstruction more easy to remove. Should you not succeed in this, tell your

customer that you must send it to a professional pipe-repairer, who may have to "drill" through the obstruction.

Unstopping a Bent Pipe.

Few people realize that it is impossible to curve a bore, and that consequently, that of a bent pipe must consist of two, or sometimes three straight bores, meeting at convenient angles, and it is the little pockets unavoidably made at these angles by the pipe-maker (for he is working in the dark) that cause the difficulty in cleaning or unstopping bent pipes. The best plan is to work at first from the bowl, pushing the obstruction towards the mouthpiece with a piece of pliable copper wire. But if it be the short bore from the bowl that is blocked up, then insert a knitting-needle up the stem to create a resistence to the brad-awl, or something of that kind, with which the short bore is to be cleared. It is not of consequence if the short bore be enlarged by this process; in fact, it is rather an advantage; but be very careful not to pierce the bottom of the bowl.

It is only when the damage is trival that the shopkeeper should undertake the repairs himself; moreover, one must discriminate between stock goods and those belonging to customers; in the latter case the owner must agree to any projected repairs or alterations, and should be appraised of the probable cost. With stock, the only object is to make the damaged article salable.

Fixing a Loose Mouthpiece.

A very small but frequent repair is occasioned by the mouthpiece becoming loose generally caused by shrinkage of the little screw joining it to the stem; this applies to stock; but when it occurs in pipes in use the cause is the decomposition of the cement by the acid of the saliva of the smoker. If the mouthpiece be slightly loose and overturns somewhat, remove it and dip the screw in thin gum; after ten or fifteen minutes replace it in the exact position it should be, and put the pipe aside to dry. But a different process is needed if the screw is

loose from the meerschaum. With a small penknife scrape away the face of the old cement in the screw, and clean properly the surfaces of the mouthpiece and stem where they should join. In the case of a smoked pipe clear away *all* the old cement and clean the bore with a pipebrush dipped in a little spirit.

How to Make the Cement.

Make a small quantity from plaster of Paris and liquid gum; the bottom of a cup or saucer will be found useful; on this put a little pile of plaster, add gum, stirring and mixing it all the time, until the mixture becomes a thick paste. This cement sets rapidly, therefore, if disturbed in the process, mix a fresh lot. Now put some of the paste in the stem of the pipe, then insert the screw attached to the mouthpiece and press the same firmly; wipe off the superfluous cement carefully, and then blow strenuously down the mouthpiece, or insert a stout blunted wire, so as to expel the loose portions from the bore, otherwise the stem will be blocked by dry cement. Now rest the pipe bowl downward, in the case, or elsewhere so that the mouthpiece stands alone, and leave it for a few hours to dry.

To Repair a Broken Stem.

There are several modes of repairing fractures. As a rule meerschaum breaks off fairly level, but the fracture is likely to be irregular when on or close to the screw, owing to the leverage of the mouthpiece. In this connection it may be remarked that imitations of meerschaum mostly show "conchoidal" or shell-like fractures; they are seldom worth repairing. For a clean break in the stem of a meerschaum pipe, let your professional repairer make the broken edges quite flat and insert a disc of meerschaum of a slightly larger diameter than the stem; all three parts to be joined with a bone screw; this is known as a "collar-joint," and is equally applicable to a new as to a colored pipe. If broken close to the stem there is likely to be a

crack longitudinally; if a customer's pipe, the best repair is with a silver band fitting closely, and extending a trifle over the mouthpiece, which thus becomes a fixture; but if it be a stock pipe, have the broken part removed and replaced by a new piece of meerschaum.

When Broken Close to the Bowl.

If this happens to a stock pipe it is impossible to repair it satisfactorily; it would not find a purchaser; it is better to face the loss and save the case and mouthpiece which will, probably come in for a future repair, and thus repay you part of the loss. This kind of break more frequently occurs to a colored pipe, because the meerschaum is then more sodden close to the bowl. If the owner be very fond of his pipe, it is quite possible to have it repaired by having an ivory or bone tube inserted inside the stem and the bottom of the bowl, the tube being spread out there like a tiny funnel; the repair is further strengthened by an outside mount, finishing on the bowl with an angle, which is then secured with a silver pin.

Some of the edges are so sharp that it is a common accident to chip off a piece of the meerschaum; in all probability it is a small piece; if so, it is an easy matter to trim the broken edge with a sharp penknife, always supposing that the surrounding carving will admit the operation without disfigurement. If, however, the fracture be too large to treat in this manner satisfactorily, then carefully wrap the broken-off piece in tissue paper, place it inside the bowl, and put the pipe away for future treatment when you can sit down quietly and uninterruptedly. Then get some Major cement or other transparent preparation with which the fracture can be repaired in such a manner that it does not show where joined. Seccotine is not colorless enough for this work. A very small portion of cement should be used, it being necessary to allow it to dry perfectly, after which the superfluous cement must be very carefully removed with a knife.

This job must be done with perfectly clean fingers, as dirt, grease, or even perspiration on the fracture will prevent the cement holding. Should you have any doubt about your capability, then send the pipe to a professional pipe-repairer. A colored or partially colored pipe does not require so much care, as the trimming off or fracture can be darkened with tobacco juice.

With cheap goods it is best to put broken ones into the "cripples' box" (of which we will treat hereafter); but with better qualities—they generally break close to the mouthpiece—attempts should be made to repair them by cementing the broken parts together, letting the same become perfectly dry, then cover the fracture with a silver band. If the screw simply becomes loose, then proceed in the same manner as with meerschaum, but using liquid glue instead of plaster and gum; as a rule, they are loose for want of a little moisture only. When screws are broken, it is sometimes possible to extract the broken pieces and put in new ones; but, as a rule, it is better to put the pipes in the "cripples' box," taking care to place the mouthpieces in the bowls after wrapping them in paper; this to ensure that the right mouthpiece can be afterwards put to the right pipe.

Repairing Amber and Amberoid.

There are very few repairs which the novice can not do himself, with the exception of when the lip-piece is broken or bitten off. With small pieces it is not worth the time and trouble that the repair involves; but it is different with a long, and therefore expensive, mouthpiece. To begin with, the fractured part must be cut off level with the small three square file, or, better still, with a very fine small saw such as metal-workers use; now with the medium safe-edge file held flat on the table or bench, the cut-off end must be made smooth by moving the amber, held perfectly upright, from end to end of the file. The next process is to cut a lip on the amber with a fine file; the lip must be

started somewhat thicker than would seem to be necessary, because the subsequent trimming will considerably reduce it. Now graduate the cut along the amber so that the result may not be too stubby and sudden; this is the most difficult and tedious part of the process. When done, trim the end of the amber and the new lip to a crescent shape, with the medium and fine files in succession. To get the right shape take an unbroken mouth piece as a pattern. The repaired mouthpiece now requires polishing, firstly with No. OO emery paper, then with O pumice-stone and oil. Rub with whitning to finish.

Joining Amber.

When amber or amberoid is bodily broken send it to your pipe-repairer, who can join the edges after filing them flat, by inserting a screw; as this shortens the mouthpiece, it is necessary in a bad break to insert also a piece of amber or amberoid to fill up the gap, when the screw goes completely through the new piece, which may well be of a different color to the original without disfigurement; on the contrary, it frequently enhances the appearance.

Correcting Overturned Mouthpieces.

With stock goods the overturning is generally caused by the screw having shrunk from drought, and is easily remedied by the application of moisture; but with customers' pipes it is mostly caused by constant unscrewing for cleansing purposes; in these cases it will mostly be found that the portion of the screw inside the stem of the meerschaum or briar, as the case may be, is very firmly fixed. To correct this overturning it is needful to cut down the joining face of the mouthpiece so as to convert the "over-turn" into a complete half-turn; sometimes this proves to be insufficient and a whole turn is required. The cutting-down process is effected with the file held quite flat on the table, and the amber worked steadily and firmly to and fro; try-

ing the mouthpiece on the screw frequently so as not to file off *too* much.

Another authority offers a simpler and perhaps more effective method. His instructions are as follows:

At any time a mouthpiece overturns, either a briar or meerschaum pipe: Unscrew the amber mouthpiece, take a little rosin and pulverize it to a dust. Dip the amber in the rosin and the mouthpiece will fit true with the pipe. No filing will be necessary with this little operation.

Vulcanite Mouthpieces.

Vulcanite mouthpieces are of two kinds, viz.: molded and cut from the solid block. The former are the more liable to breakage, particularly in frosty weather. They are not easily mended. In fact, it is cheaper to replace them. Pipes to which these are attached should be put into "the cripples' box." The most frequent breakages of the solid vulcanites occur to the lip part, and are caused by strong-jawed smokers, of which there are many, bitting them through. It is quite a simple matter to cut a new lip on vulcanite, but in the absence of a lathe, it is very difficult to polish properly. This is not very important with a pipe in use, as one can make it fairly smooth with some kind of a burnisher, such as a round tool which is made of hard steel. On the other hand, the customer may object to his mouthpiece being made shorter and consequently "stubby." The alternative is to have a new mouthpiece made, which will give you less trouble and pay you quite as well, or better, than repairing it yourself. With the customer it is a question of delay and cost.

Vulcanite and Amber.

In this connection it is well to know that if an expensive amber mouthpiece be broken close to the stem, a very efficient and s ightly repair can be ef-

fected by having a piece of vulcanite joined to the amber to take the place of the fractured part.

Horn Mouthpieces.

These are practically unbreakable, but some horn "laminates" or chips off in scales. It is also liable to split when of a poor quality. They cannot be repaired. Bent horn will sometimes straighten somewhat when exposed to the heat of the sun in the window, also when being smoked. They are easily re-bent by soaking them for a few minutes in hot water to make them pliable. Then bend with the fingers and hold so, until quite cool.

The Cripples' Box.

We now come to this oft-mentioned receptacle, which may well be an old deep cigar-box, or something of that kind. The principal object of this box is that it should be used for the cheaper kinds of broken fancy goods, or even for those of the better kind which have been put aside for future treatment. One might think that it is not worth while to trouble about the cheaper kinds, and that they might as well be thrown away at once. This is most decidedly wrong, because it is by small economies that we learn the important item, "thrift!" What we have to consider, however, is the cost of repair as compared to the original cost of each article. There may be many "cripples" which a handy man can repair himself in his own spare time, and this is where the silver bands, the bone screws, etc., come in. Of those articles which are beyond repair, the mouthpieces, screws and cases should be saved for future possible use.

To Repair the Pipe Cases.

Under this heading we include cases for cigar and cigarette holders. It is not uncommon for the outside leather to get slightly torn. Mend these as soon as discovered with liquid gum. If the spring of a case does not act satisfactorily, remove the contents and ascertain the cause. It

may be a piece of leather or plush lining against the flat of the inside of the spring, which can be removed with a sharp knife, or the spring may require to be slightly bent with a fine pair of pointed pliers, either forwards or backwards as may be required, so that the case opens and closes easily. Sometimes the tiny hasp requires a little filing of the inside edge. Sometimes hinges require a new pin. Now replace the article in the case; if the former be too large for the latter, someone has put the wrong pipe in it; if so, search through your stock for a case with a pipe too small, and exchange the contents.

Shabby cases frequently spoil a sale, for they indicate "old stock." Therefore, it is necessary to keep them as nice-looking as possible; even to sending them to the pipe-case-maker to revarnish and, if required, reline.

CHAPTER XXXIV

SIZES, SHAPES, "FRONT MARKS," AND COLOR CLASSIFICATIONS

How the Names of Shapes Originated and What they Mean—The Color of a Cigar Not a Sure Indication of "Strength"

The words "size" and "shape" are nearly synonymous in cigar terminology, and either word, when used in the trade, usually implies a combination of both meanings. That is, by either "size" or "shape" is meant the formation of a cigar—length, thickness and contour. The name of the particular size and shape of the cigar contained in a box is usually printed on the front of the box, and this is called the "front mark," so that "size," "shape," and "front mark" are almost interchangeable terms.

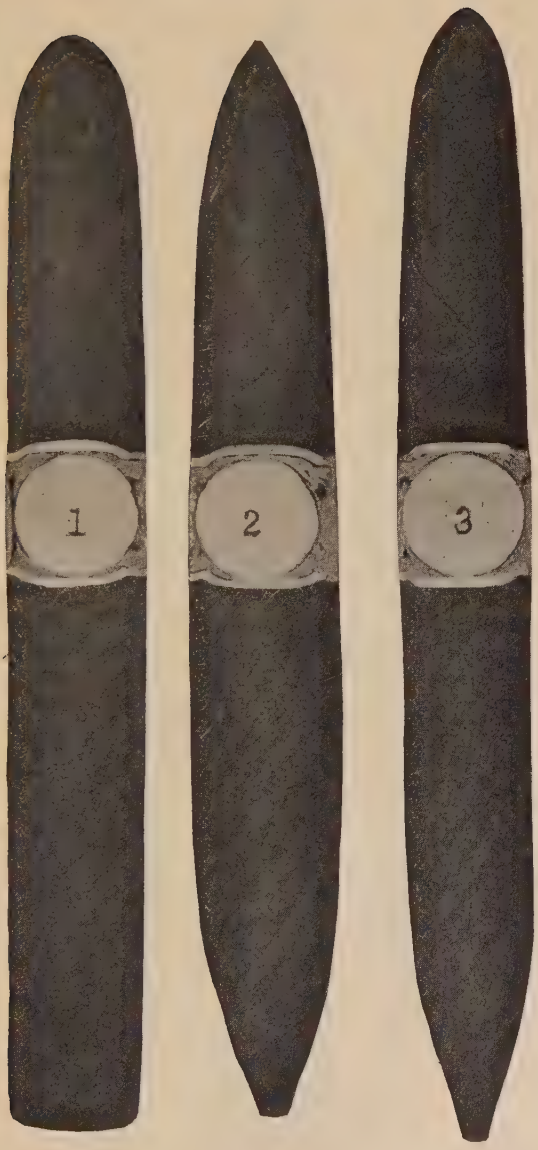
Many Cuban factories and some domestic clear Havana factories pack cigars under as many as forty or fifty different front marks. Some of these shapes are given arbitrarily-chosen and fanciful names which do not really represent an individual size, while others are inappreaciable gradations from more or less standard front marks. As a matter of fact, there are only about twenty or thirty front marks which are broadly recognized by the trade as representing each a differently shaped cigar; and even these are not accurately standardized, either as to size, shape or name. They begin with a little three-and-a-half-inch smoke called variously Petit Duc, Coquetta, etc., which is usually made to wholesale at $35 per thousand, and range upward to a large and very expensive size, called Presidente, Noblezas, Ambassadors, etc., measuring seven-and-a-half-inches.

STANDARD FRONT MARKS.

The following list of twenty-five front marks is fairly representative of the nearly-standard sizes made in this country. They are not given in progressive order, the number before each name being merely as a Key to the accompanying illustrations.

1—Coronas.
2—Imperiales.
3—Invincibles.
4—Perfectos.
5.—Palmas Reales.
6—Incomparables.
7—Invincible Chicos.
8—Perfecto Finos.
9—Triangulares.
10—Puritanos.
11—Epicures.
12—Panetelas.
13—Students, Gems, etc.
14—Perfecto Especiales
15—Deliciosos.
16—Magnificos.
17—Perlas.
18—Brevas.
19—Petit Ducs.
20—Reina Victorias.
21—Londres.
22—Rothschilds.
23—Conchas.
24—Favoritas.
25—Regalias.

Among the many other sizes which, owing to their close similitude, would be mere duplications of those above enumerated are Predilecto, Brilliante, Esceptionale, Solomone, Sensibles, Vitolas de Luxe, Fancy Tales of Smoke, Palmas, Pets, Chiquitas, Bouquets, Belvideres, Napoleons, Exclusivos, Superbas, Imperials, Peerless, Ponies, Caballeros, Alfonso, Juniors, Cazadores, Club House, etc., and many others, together with their appended variations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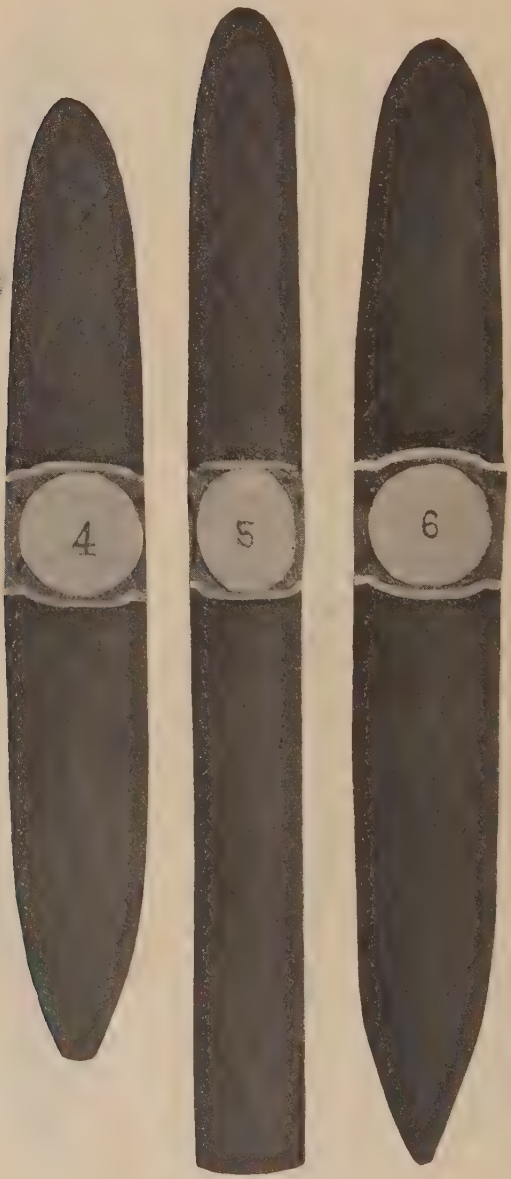
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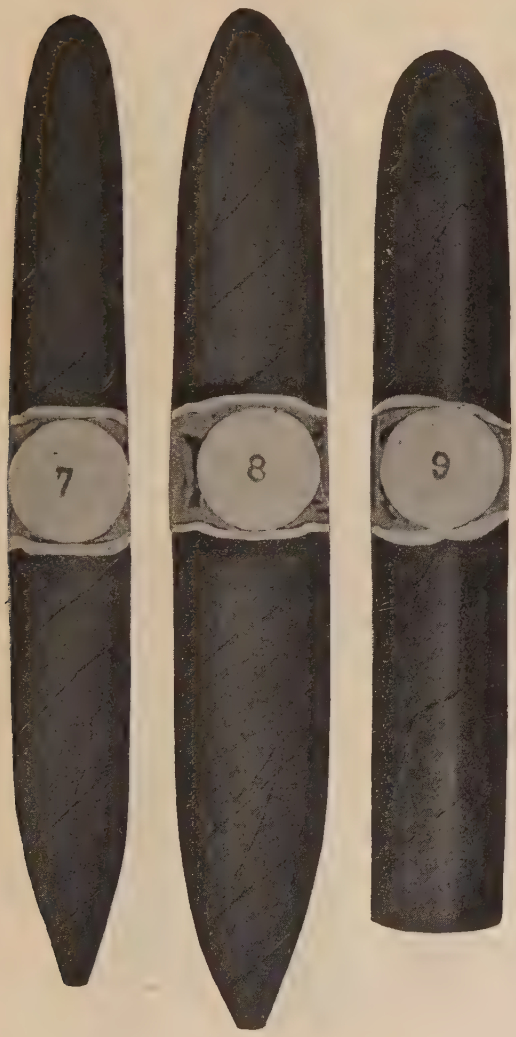
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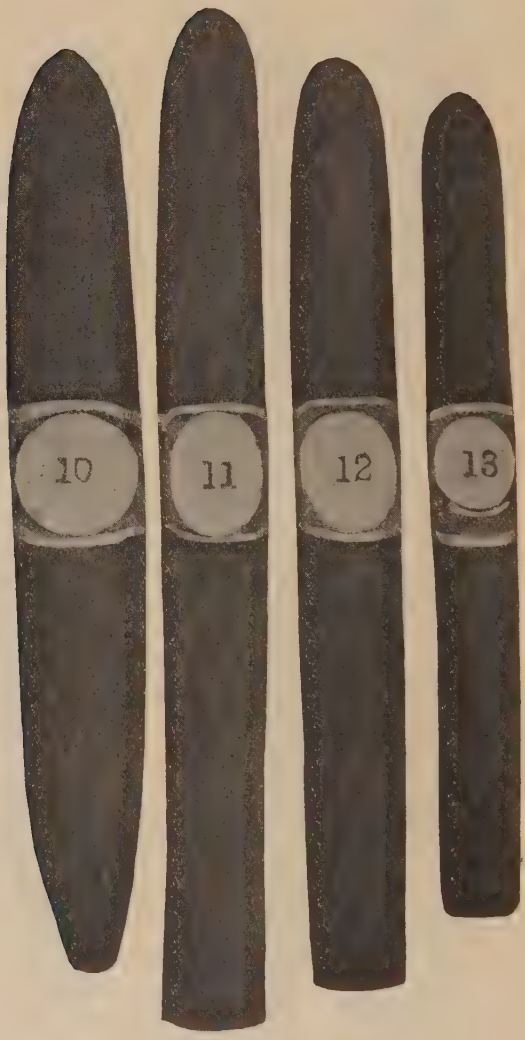
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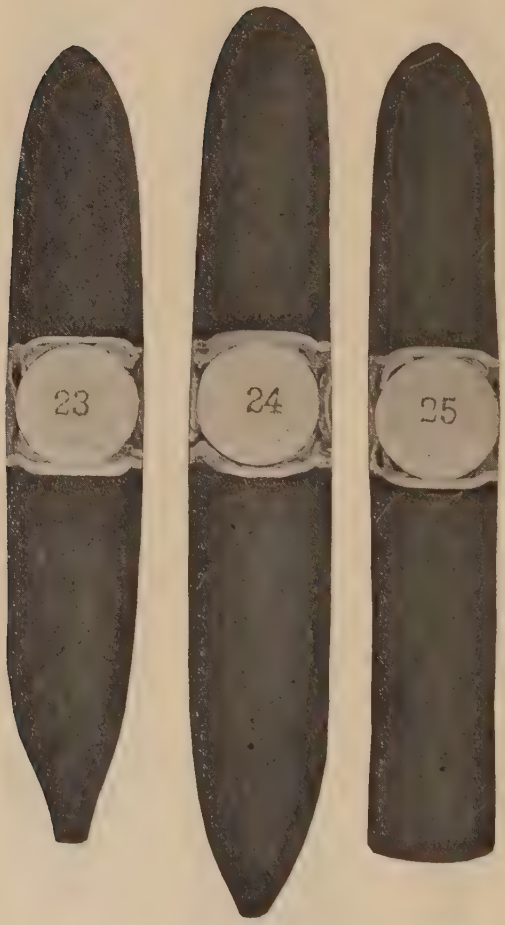
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such as Especiales, Extra, Extra Fina, Chica, Grande, etc.

Imported cigars usually run smaller than corresponding shapes in domestic Clear Havana goods.

The question is sometimes asked: What was the origin of these various front marks? All of them originated in Havana, and most of them have been in use for many years, having been adopted by the early Cuban manufacturers, partly for their euphony and partly for the qualities which the words suggest. For instance *coquetta* means flirt; *Puritano,* Puritan; *delicioso,* delicious; *perfecto,* perfect; *favorita,* favorite; *cazadora,* huntress; *breva,* pressed figs, etc. Some of the old-time front-marks have legends connected with their adaptation. There is a story for instance, that many years ago, before the industry in Cuba was as large as it is now, a small manufacturer in Havana struck the popular fancy by making a cigar that was very soft and spongy, which became known as the *panetela,* which is the Spanish for sponge. The word eventually came to be employed in describing what is now known as the Panetela shape. There is also a pretty well-established tradition that the *Londres* (London) originated from a size which first became popular in the British capital. The English equivalent of *concha* is shell; and that of *entre actos,* is between the acts, suggestive of the short smoke.

STANDARD COLOR MARKS.

As has been shown in my description of the manufacture of clear Havana cigars, the color classification is based solely upon the wrapper, no gradation of color or strength being made, generally speaking, in the filler.

LIGHT CIGARS NOT MILDEST.

Probably there is not one smoker in a thousand who is not surprised and, in fact, skeptical, when he is told that the color of a cigar is absolutely no guide to its strength. Yet such is the case, and a

fact well known to cigar manufacturers and to dealers and importers. The belief of smokers that cigars of dark color are strong and those of a lighter shade are milder, is, in point of fact, as fallacious as it is general.

Sometimes the inclination of smokers toward light-hued cigars assumes the proportions of a "craze," and the producers find much difficulty in meeting the demand. The manufacturers would then gladly correct the error; but, after having carefully classified their products under the style of claros, colorados, maduros, etc., for decades, and allowing it to be understood that these terms were synonymous for mild, medium and strong, they find it next to impossible to dispel the delusion.

A maker of Havana cigars virtually uses but one grade or blend of tobacco in the body or filler of his cigars. The same stock is used in his Conchas as in his Perfectos; in his claros as in his maduros. After the cigars are made, however, his "selector" takes them in hand and classifies them according to the relative shades of the wrappers. This is done to effect a uniformity in the appearance of each box of cigars, and to enable the dealer to readily indulge the whims of the self-deluded smoker.

Inasmuch as the wrapper constitutes not more than one-tenth of the cigar, it will readily be seen that the degree of its strength or mildness is very inconsiderable in effect. In this connection, however, it is interesting to note that tobacco tradesmen versed in the intricacies of the industry rigidly bar the light-colored wrapper from their own smoking tables, knowing that it generally indicates that the leaf was prematurely cut or improperly cured, and that it impairs the flavor and burn of the cigar. Cubans, who, by the way, are notably partial to mild tobacco, avoid smoking light-colored cigars just as they avoid eating a green orange or an unripe banana.

The popular idea, therefore, that the degree of strength or mildness of a cigar is indicated by its color is erroneous. Nevertheless, as smokers generally have strong prejudices regarding the shade of their cigars, manufacturers sort their product very carefully

according to the wrapper colors. These, with the literal definition of the words and their trade meanings are as follows:

COLOR MARK.	TRANSLATION.	POPULAR MEANING.	TRADE MEANING.
Claro,	Light,	Very Mild,	Very Light,
Colorado Claro,	Light Red,	Mild,	Light,
Colorado,	Red,	Medium,	Medium,
Colo. Maduro,	Red-Ripe,	Strong,	Dark,
Maduro,	Ripe,	Very Strong.	Very Dark.

Years ago, when there was a more general demand for extremely dark cigars, the word "oscuro" was used, which was derived from the Spanish *obscuras,* meaning "in the dark." This word is now practically absolete in cigar nomenclature, having passed away with the decline of the popular fancy for extremely dark tobaccos.

CHAPTER XXXV

HOW TO DETERMINE THE QUALITY OF A CIGAR

The Way the Expert Goes About It—Method of Keeping Frost Off the Window—Useful Hints for the Cigar Dealer

As every cigar dealer knows, it is impossible to get the slightest idea of the quality of a cigar by holding it, unlighted, horizontally under the nose and sniffing at it—a custom very general among smokers.

Experts appraise cigars on five counts; first, burn; second, aroma; third, taste or flavor; fourth, color, and fifth, workmanship.

Burn.—The burn is placed first advisedly. If the cigar does not burn freely, all other merits combined will not save it from condemnation. By burn is meant the degree of combustibility. If the cigar holds its fire, say three or four minutes, without being puffed, and the tobacco is consumed evenly on all sides and shows no thick, black ring of carbon where the leaf meets the ash, then the burn is good. Contrarywise, the burn is poor.

Aroma.—As to aroma and taste, the second and third counts, it is sufficient to say that if these are agreeable, they are merits, but if they are disagreeable or merely lacking, they count adversely.

Color.—As to the fourth count, color, the wrapper of the cigar should not be of a too greenish cast or too pale in color, as these signs indicate an insufficient cure of the tobacco. The ideal color is a rich, ripe, deep brown. The particular shade of brown is a matter of individual preference. There was a time when there was a demand for extremely dark cigars. But of recent years medium to light colors have been more in favor.

Workmanship.—The fifth and last count is the workmanship. A good cigar should be made smoothly and evenly without any cracks or humps. It must feel firm when squeezed between the fingers, otherwise it will become spongey when half smoked; but it must not be hard, else it is not likely to smoke freely. The filler must be put in carefully, as a sprig of tobacco which does not lie exactly longitudinally will impede the "draw."

THE SIGNIFICANCE OF SPOTS.

Spots on tobacco, contrary to the once popular opinion among smokers, are no indication of its quality whatever. They are caused sometimes by rain splashing sand on the lower leaves when they are young in the field; sometimes by bacteria, as is the case with fruits, garden vegetables and leaves of trees.

DON'T JUDGE BY ONE CIGAR.

It is an injustice to any brand of cigars to judge it by smoking one cigar. No matter how painstaking a manufacturer may be, there are sure to be found, in almost every shipment, a cigar here and there that is below the standard of the factory's product. Even though the goods are carefully inspected before leaving the factory, it is impossible to detect every imperfection of the workmanship. Moreover, in the best selected Havana tobacco ever imported there are occasionally inferior leaves which can only be detected by smoking. A brand of cigars should never be condemned until after at least three of four cigars have proved, consecutively, to be inferior.

TO PREVENT WINDOW FROSTING.

A great many merchants find difficulty in preventing their windows from frosting or sweating in cold weather, which practically renders them useless for publicity purposes at a time when they are of the most value.

The physical cause of the deposits of moisture upon windows is the great difference in the temperature between the surface of the glass and the air. This

is especially true when the air that comes in contact with the glass bears a relatively high portion of moisture.

As long as the glass is as warm as the circulating air, or near that temperature, there will be no deposits.

Warm air is able to carry a much larger portion of water than cold air, and the problem therefore resolves itself into the question of keeping the glass as near the temperature as the air on the outside of the window, or, reverse the reasoning, to keep the air on the inside of the window near the temperature of the coolness of the glass.

At all times try to keep as even a temperature as possible on both sides of the glass, as the cold air on the outside of the glass condenses the moisture in the warm air inside, which causes moisture or sweat to deposit on the inner surface of the pane. This sweat when freezing causes frost.

A very practical and safe solution of this problem is to have the windows so ventilated that the air on both sides of the glass is kept at about the same temperature. In order to accomplish this result, the windows must be shut off or boxed in from the inside of the store and ventilated from the outside. All of the new modern metal window construction is equipped with these ventilating tubes. In fact, one of the strongest points in favor of metal strip show window construction is the ventilating feature.

In a series of windows, where they are all connected, a 24x26-inch opening at either end of the series will in most cases answer nicely and obviate any further trouble.

A fixture designed to prevent this difficulty may be purchased from fixture houses or it can be made by practically any metal concern that deals in pipes or lighting fixtures. This shows a row of small tubes with screen protections at either end run through the show window sash at top and bottom. In case the window sash is not deep enough the tubes can be set in below the flooring of the window. This will require an elbow made especially

for this purpose. If the window is large these tubes should be placed at equal distances along the upper and lower portions of the sash.

The cold air circulating through the tubes across the inside keeps steam and frost from forming. The screen shields are placed at each end of the fixture in order to prevent insects from getting into the windows and to prevent mischieveous boys from pushing sticks and other articles into the tube.

As windows rarely sweat in the Summer, a cup can be placed over the inside opening to prevent dust from accumulating on the merchandise shown in the window.

OTHER METHODS.

Other remedies that have been tried where the show window has not been properly constructed are as follows:

Rub the glass with a solution of equal parts of alcohol and glycerine, allowing the solution to remain on the glass.

Set an electric fan on the inside of the window, so that it will blow directly on the glass.

The best solution is to see that your show windows are properly ventilated and in order to be properly ventilated they must be cased in.

FREE IMPORTS.

Though tariffs confront the narcotic weed everywhere, yet nearly every country allows the traveler to bring with him a pocket full of cigars or other smoking material.

The rule varies from one land to another, and the following gives a good account of the facts up to date:

Austro-Hungary allows twelve cigars and thirty-five grammes of tobacco; Belgium, nothing; Bulgaria, fifty cigars, fifty cigarettes and fifty grammes of tobacco; Denmark, nothing; Egypt, twenty-five cigars, 100 cigarettes and 200 grammes of tobacco; France, thirty cigars and 300 cigarettes; Germany, enough for immediate use; Great Britain, twelve cigars and twenty cigarettes; Holland, nothing; Italy, six cigars and

fifteen cigarettes; Korea, 500 cigars and 1,000 cigarettes; Monaco, thirty cigars, 100 cigarettes and 100 grammes of tobacco; Mexico, fifty cigars and 200 cigarettes; Norway, 100 cigars; Portugal, nothing; Roumania, twenty cigars, 100 cigarettes and 100 grammes of tobacco; Russia, 100 cigars, 100 cigarettes and 100 grammes of tobacco; Servia, nothing; Spain, nothing; Sweden, nothing; Switzerland, 250 grammes of smoking material; Turkey, nothing; United States, fifty cigars and 300 cigarettes.

THE GOVERNMENT HUMIDIFYER.

The United States Department of Agriculture has issued a circular describing a humidity regulator that was designed by the Department experts primarily for use in laboratories and cold storage plants. It is thought the apparatus might be useful to cigar manufacturers and dealers to regulate the moisture in humidors.

The apparatus has been patented and the patent dedicated to the public.

The regulator operates through the evaporation of moisture on a bulb, which cools the gas contents of the bulb, thus reducing pressure in another bulb which is dry. This breaks an electric circuit, which actuates a steam or water spray or a heating unit for raising the vapor tension of a body of water over which the air flows. As the humidity of the air is thus increased the evaporation from the moist bulb diminishes, and consequently the cooling, which restores the pressure in the dry bulb, and the electric connection is again made and the source of moisture is cut off.

Anyone who is interested should apply to the Department for Circular 211, "A Humidity Regulator."

THE YELLOW STAIN.

Whenever there is incomplete combustion there is distillation and tarry oils are produced. This applies to wood and many other substances including tobacco. The yellow liquid which collects in the bottom of the pipe bowl and stains the fingers of the inveterate cigarette smoker, and which is so generally designated by the

uninformed as nicotine, is not nicotine at all, but merely the tar oil distilled from the burning weed. It is exactly the same process as that which goes on in the old-fashioned smoke house and which changes the color of the ham from a red to a rich brown. The fluid produced from the smoke of tobacco is what is known as a wood tar and as wood tars are not appreciably affected by alkalis the stain on the smoker's fingers is not materially affected by soapsuds. It is this, and not nicotine, that is produced by the much exploited test of blowing a mouthful of smoke through a handkerchief. The surest and simplest method of removing the yellow stain is by the application of pumice stone. By first soaking the hands in warm, soapy water the outer skin will be softened and the pumice stone will do its work more easily.

PART VIII

MISCELLANEOUS

CHAPTER XXXVI

THE UNION WAGE SCALE OF CIGARMAKERS AND PACKERS

Pay of Workmen in Team-Work Factories for Various Sized and Shaped Cigars—The Scale in a Spanish-Work Factory

The wage scale of cigarmakers undergoes slight changes not infrequently, and it is not standard in all cities. The following, however, is the scale prevalent in an Eastern city, and gives a fairly accurate idea of the universal wage system for this kind of workmanship:

WAGE SCALE FOR SEED AND HAVANA AND MOLD MADE CIGARS.

PANATELLA.

HAND WORK.

Section 1. Sumatra or Seed Wrapper and Binder. Imported, Mixed or Seed Long Filler.

4¼ inches or less	$13.00
4½ inches or less	14.00
4¾ inches or less	15.00
5 inches or less	16.00

One dollar extra for each additional ¼ inch or fractional part thereof.

2. Sumatra or Seed Wrapper and Binder. Prepared Imported, Mixed or Seed Scraps.

4¼ inches or less	$11.00
4½ inches or less	12.00
4¾ inches or less	13.00
5 inches or less	14.00

One dollar extra for each additional ¼ inch or fractional part thereof.

3. Perfectos, Flor de Fumas, Reina Victorias and Trabuccas, Sumatra or Seed Wrapper and Binder, Imported, Mixed or Seed Long Filler.

4¼ inches or less	$16.00
4½ inches or less	17.00
4¾ inches or less	18.00
5 inches or less	19.00

Two dollars extra for each additional ¼ inch or fractional part thereof.

Prepared Imported Mixed or Seed Scraps, one dollar less than long filler.

4. Principes and Cheroots, Sumatra or Seed Wrapper and Binder, Imported, Mixed or Seed Long Filler.

4½ inches or less	$11.00
4¾ inches or less	12.00
5 inches or less	13.00

One dollar extra for each additional ¼ inch or fractional part thereof.

Peculiar shapes, $2 extra.

5. Panatellas, Principes and Cheroots, Sumatra or Seed Wrapper and Binder. Havana, Mixed or Seed Long Filler.

4½ inches or less	$11.00
4¾ inches or less	12.00
5 inches or less	13.00

One dollar extra for each additional ¼ inch or fractional part thereof.

Peculiar shapes, $2 extra.

6. Panatellas, Principes and Cheroots, Sumatra or Seed Wrapper and Binder. Prepared, Imported, Mixed or Seed Scraps.

4½ inches or less	$10.00
4¾ inches or less	11.00
5 inches or less	12.00

One dollar extra for each additional ¼ inch or fractional part thereof.

Peculiar shapes $2 extra.

7. Hand-Made Smokers.

5 inches or less	$13.00

One dollar extra for each additional ¼ inch or fractional part thereof.

Sec. 8. Where Havana Binders, Sumatra or Seed Wrappers are used $1 extra.

Sec. 9. Where Havana Wrappers, Havana or Seed Binders are used, $2 extra.

Sec. 10. Where Havana Wrappers are taken from Fillers, $3 extra.

Sec. 11. Where two or more kinds of fillers are mixed on the table, $1 extra.

Sec. 12. Where 12 hand-made straight cigars are too large for a 7½ inch gauge, $1 extra.

This shall not apply to smokers.

IMPORTED FILLER MOULD WORK.

Sec. 13. Sumatra or Seed Wrappers and Binder. Imported or Mixed Long Filler.

4 inches or less	$10.50
4¼ inches	11.50
4½ inches or less	12.50
4¾ inches or less	13.50
5 inches or less	14.50

One dollar extra for each additional ¼ inch or fractional part thereof.

Sec. 14. Sumatra or Seed Wrappers and Binder. Prepared Imported scraps.

4 inches or less	$8.00
4¼ inches or less	8.50
4½ inches or less	9.50
4¾ inches or less	10.50
5 inches or less	11.50

One dollar extra for each additional ¼ inch or fractional part thereof.

One dollar extra for all odd shapes.

Where Sumatra pieces are used on Junior Jobs (4 inches or less) 50 cents extra.

Sec. 15. Perfecto, Flor Del Fumas, Reina Victorias and Tra-

buccas, Sumatra or Seed Wrapper and Binder, Imported or Mixed Long Filler.

4¼ inches or less	$13.00
4½ inches or less	14.00
4¾ inches or less	15.00
5 inches or less	16.00

Two dollars extra for each additional ¼ inch or fractional part thereof.

Sec. 16. Cheroots, Sumatra or Seed Wrapper. Imported or Mixed Long Filler.

4½ inches or less	$9.00
4¾ inches or less	9.50
5 inches or less	10.00

One dollar extra for each additional ¼ inch or fractional part thereof.

Prepared, Imported Scraps, 50 cents less than long imported filler.

Peculiar shapes, $1 extra.

Sec. 17. Panatellas, Sumatra or Seed Wrapper and Binder. Imported or Mixed Long Filler.

4½ inches or less	$9.50
4¾ inches or less	10.50
5 inches or less	11.50

One dollar extra for each additional ¼ inch or fractional part thereof.

Prepared, imported or mixed scraps $1 less than long imported filler.

Peculiar shapes, $1 extra.

Sec. 18. Where less moulds than for 40 bunches are used, the job shall be considered the same as hand work. This section applies to imported Filler Mould Work Schedule only.

Sec. 19. Reroll work, $1 extra.

Long Filler and scraps mixed, $1 extra.

SEED MOULD WORK.

Sec. 20. Sumatra or Seed Wrapper and Binder. Prepared Seed scraps or mixed with half or less imported scraps.

4 inches or less	$8.00
4½ inches or less	8.50
4¾ inches or less	9.00
5 inches or less	9.50

One dollar extra for each additional ¼ inch or fractional part thereof.

Sec. 21. Perfectos, Flor Del Fumas, Reina Victorias and Trabuccas, Sumatra or Seed Wrapper and Binder. Prepared Seed Scraps or Mixed with half or less imported scraps.

4½ inches or less	$10.00
4¾ inches or less	10.50
5 inches or less	11.00

One dollar extra for each additional ¼ inch or fractional part thereof.

Sec. 22. Sumatra or Seed Wrapper and Binder, Seed Long Filler.

4½ inches or less	$9.50
4¾ inches or less	10.00
5 inches or less	10.50

One dollar extra for each additional ¼ inch or fractional part thereof.

Sec. 23. Smokers, Sumatra or Seed Wrapper and Binder. Seed Long Filler.

4¼ inches or less	$9.00
4¾ inches or less	9.50
5 inches or less	10.00

Sec. 24. Perfectos, Flor Del Fumas, Reina Victorias and Trabuccas, Sumatra or Seed Wrapper and Binder. Seed Long Filler.

4½ inches or less	$11.00
4¾ inches or less	11.50
5 inches or less	12.00

Two dollars extra for each additional ¼ inch or fractional part thereof.

Sec. 25. Panatellas, Sumatra or Seed Wrapper and Binder. Seed Long Filler.

4½ inches or less	$8.50
4¾ inches or less	9.00
5 inches or less	9.50

One dollar extra for each additional ¼ inch or fractional part thereof.

Sec. 26. Where moulds for less than one hundred bunches are used, $1 extra. Where moulds for less than forty bunches are used, the job to be considered the same as hand work. This section applies to Seed Mould Work Schedule only.

Sec. 27. There must be press facilities for all moulds in use. This section must be strictly enforced.

Sec. 27½. Long Filler and scraps, $1 extra.

Sec. 28. Grievances on any jobs not provided for in this bill shall be referred to the Executive Board of Union No. 97.

Sec. 29. When a difference of opinion shall arise in the construction of prices named in this bill, it shall be decided by the Executive Board, subject to the appeal of the Union.

Sec. 30. Team Work shall not be allowed in the jurisdiction of this Union.

Sec. 31. When a single binder is used, $2 extra. Two kinds of Seed filler for Mould work mixed on the table calls for $1 extra.

Sec. 32. Clear Havana Spanish Work.

Invincibles, 5¼ inches	$42.00
Perfectos, 5 inches	30.00
Reina Victorias, 4¾ inches	28.00
Londres-fino, 4¾ inches	24.00
Puritanos, 4½ inches	22.00
Londres, 4¾ inches	21.00
Medianos, 4¼ inches	20.00
Conchas, 4½ inches	20.00
Panatellas, 4¾ inches	19.00
Conchas, 4¼ inches	18.00
Princesses, Operas, Coquettes Infantes	18.00

Clear Havana Spanish Mould Work, $2 less than Spanish Hand Work.

PACKERS' BILL OF PRICES.

LOOSE.

1-10	$1.25
1-20	1.50
1-10, 17 or 20 Top	1.50
1-40, 13 face	2.25
1-40, 9 face	2.00
1-40	1.25
1-80	4.00
1-80 not less than	4.00

BUNDLES.

1-10	$1.50
1-10, 50 in bundle	1.50
1-20	1.50
1-10, 25 in bundle, 2 bundles face	1.75
1-10, 25 in bundle, 4 bundle face	2.00
1-20, 25 in bundle	2.00
1-40, 25 in bundle	2.00
1-40, 25 in bundle	1.75
1-20, 10 in bundle	2.50

Perfectos packed in bundles, 25 cents extra.
Bass or two more ribbons, 25 cents extra.
Cigars packed 25 in bundle and pressed in blocks, 25 cents extra.

Sample boxes of 25 cigars or less, 10 cents extra each.
Cigar packed right and left, 25 cents extra.

CLEAR HAVANA WORK.

Figaro Style.

1-20 loose	$2.00
50 bundles	2.00
100 bundles	2.00
1-40	3.00
Better grades, 25 cents extra.	
1-40	$4.00

All jobs not on this bill to be settled by a committee of not less than two cigarmakers and three packers.

WAGES OF CLEAR HAVANA CIGARMAKERS

Here will be found the wage scale for the making of clear Havana cigars in one of the cities of the South. It will be noted that many of the sizes named are not commonly seen as front marks on cigar packings. The explanation of this is that manufacturers, in arranging their front marks, do not confine themselves to the names recognized by the workmen's organizations. In other words, the names in this list are simply those recognized between workman and manufacturer for purposes of systematizing the wage scale. In studying this table it must also be considered that the list is subject to change from time to

time, and that the sizes and shapes described are subject to slight variations necessary to maintaining the individuality of the product of the different manufacturers. The table is submitted simply to give a general idea of the prices paid for clear Havana workmanship.

Name	Inches in Length	64th of an inch Thick	Shaped or Straight	Price of Labor
Babies	3 1- 2	38	Both	$ 8
Babies	3 7- 8	36	Both	9
Cheroots	4 1- 4	41	Both	8
Cheroots Grandes	4 3- 4	41	Both	10
Piña Chica	4 1- 4	41	Shaped	14
Piña Chica	4 1- 4	41	Straight	15
Piña Especial	4 5-16	41	Straight	15
Piña Grande	4 9-16	41	Straight	16
Panetela Chica	4 5- 8	35	Shaped	16
Londres Corriente	4 13-16	42	Both	17
Londres Segundo	4 7- 8	40	Both	17
B. Panetelas	4 7- 8	36	Straight	17
Panetela Figurada	4 3- 4	36	Shaped	17
Panetela	4 3- 4	36	Straight	17
Londres Especial	4 7- 8	43	Shaped	18
Camelias	3 7-8	43	Shaped	18
Mediano Chico	4 7-16	42	Shaped	18
Londres Grande	4 15-16	44	Shaped	19
Brevas	5 1- 4	44	Straight	19
Puritanos	4 3- 4	43	Shaped	20
Mediano	4 9-16	44	Shaped	20
Concha Grande	4 9-16	45	Shaped	22
Epicures	5 3- 8	32	Straight	23
Plazas	4 3- 8	45	Shaped	23
Panetelas Finas	5 -	40	Shaped	23
Favoritos A	4 11-16	44	Shaped	24
Favoritos B	4 3- 4	45	Shaped	25
Delicosos	4 3- 4	42	Shaped	24
Cazadores	5 5- 8	43	Straight	24
Bates	4 3- 4	45	Shaped	24
Panetela Fina Extra	5 3- 8	40	Shaped	25
Panetela de 26	6 -	39	Straight	26
Regalia Especial	4 7- 8	45	Shaped	28
Perfectos Chicos	4 15-16	46	Shaped	31
Perfectos	5 1-16	46	Shaped	33
Perfectos Grandes	5 1- 4	47	Shaped	35
Invencibles Chicos	5 5- 8	40	Shaped	35
Invencibles A	5 3- 4	42	Shaped	41
Invencibles B	5 7- 8	42	Shaped	42
Invencibles C	6 -	42	Shaped	43
Soberanos	5 3- 4	48	Shaped	50
Palmas	7 -	34	Straight	50

CHAPTER XXXVII

VARIOUS ODDS AND ENDS OF USEFUL INFORMATION

A System for Calculating Shrinkage—Facts About Havana Tobacco not Generally Known—How Triangulares Cigars are Formed, Etc., Etc.

The table on the following page shows at once the loss per pound on shrinkage of leaf tobacco when the first cost is anywhere between one cent and thirty cents and when the shrinkage is anywhere between four per cent. and twenty-five per cent.

It shows the difference per pound between marked weight and re-weight at any price when the shrinkage is known.

It shows what price re-weight is equivalent to a certain price marked weight within the limits of the minimum and maximum percentages of shrinkage.

EXPLANATION.

To ascertain the equivalent for any price marked weight, run down the column beginning with the price whose equivalent you wish to find until the line of the desired percentage is reached, and at this point will be found the desired figures. As, for example, 9 cents marked weight is equal to 10.22 cents re-weight when the shrinkage is 12 per cent.

To find the equivalent when the marked weight price contains a fraction, as ¼, ½ or ¾, observe the following example: To determine what re-weight is equal to 11½ cents when the loss is 9 per cent, add one-half the difference between 12.08 and 13.18 to 12.08, which gives the result, 12.63. If ¼ is the fractional part, add one-fourth of the

M. W. Price	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00	29.00	30.00
4 per ct.	1.04	2.08	3.12	4.16	5.20	6.25	7.29	8.33	9.37	10.41	11.45	12.50	13.54	14.58	15.62	16.66	17.70	18.75	19.79	20.83	21.87	22.91	23.95	25.00	26.04	27.08	28.12	29.16	30.20	31.25
5 per ct.	1.05	2.10	3.15	4.21	5.26	6.31	7.36	8.42	9.47	10.52	11.57	12.63	13.68	14.73	15.78	16.84	17.89	18.94	20.00	21.05	22.10	23.15	24.21	25.26	26.31	27.36	28.42	29.47	30.52	31.57
6 per ct.	1.06	2.12	3.18	4.25	5.31	6.38	7.44	8.51	9.57	10.63	11.70	12.76	13.82	14.89	15.95	17.02	18.08	19.14	20.21	21.27	22.34	23.40	24.46	25.53	26.59	27.65	28.72	29.78	30.85	31.91
7 per ct.	1.07	2.15	3.22	4.30	5.37	6.45	7.52	8.60	9.67	10.75	11.82	12.90	13.97	15.05	16.12	17.20	18.27	19.35	20.43	21.50	22.58	23.65	24.73	25.80	26.88	27.95	29.03	30.10	31.18	32.25
8 per ct.	1.08	2.17	3.26	4.34	5.43	6.52	7.60	8.69	9.78	10.86	11.95	13.04	14.13	15.21	16.30	17.39	18.47	19.56	20.65	21.73	22.82	23.91	25.00	26.08	27.17	28.26	29.34	30.43	31.52	32.60
9 per ct.	1.09	2.19	3.29	4.39	5.49	6.59	7.69	8.79	9.89	10.98	12.08	13.18	14.28	15.38	16.48	17.58	18.68	19.78	20.87	21.97	23.07	24.17	25.27	26.37	27.47	28.57	29.67	30.76	31.86	32.96
10 per ct.	1.11	2.22	3.33	4.44	5.55	6.66	7.77	8.88	10.00	11.11	12.22	13.33	14.44	15.55	16.66	17.77	18.88	20.00	21.11	22.22	23.33	24.44	25.55	26.66	27.77	28.88	30.00	31.11	32.22	33.33
11 per ct.	1.12	2.24	3.37	4.49	5.61	6.74	7.86	8.98	10.11	11.23	12.35	13.48	14.60	15.73	16.85	17.97	19.10	20.22	21.34	22.47	23.59	24.71	25.84	26.96	28.08	29.21	30.33	31.46	32.58	33.70
12 per ct.	1.13	2.27	3.40	4.54	5.68	6.81	7.95	9.09	10.22	11.36	12.50	13.63	14.77	15.90	17.04	18.18	19.31	20.45	21.59	22.72	23.86	25.00	26.13	27.27	28.41	29.54	30.68	31.81	32.95	34.09
13 per ct.	1.14	2.29	3.44	4.58	5.74	6.89	8.04	9.19	10.34	11.49	12.64	13.79	14.94	16.09	17.24	18.39	19.54	20.68	21.83	22.98	24.13	25.28	26.43	27.58	28.75	29.88	31.03	32.18	33.33	34.48
14 per ct.	1.16	2.32	3.48	4.65	5.81	6.97	8.13	9.30	10.46	11.62	12.79	13.95	15.11	16.27	17.44	18.60	19.76	20.93	22.09	23.25	24.41	25.58	26.74	27.90	29.07	30.23	31.39	32.55	33.72	34.88
15 per ct.	1.17	2.35	3.52	4.70	5.88	7.05	8.23	9.41	10.58	11.76	12.94	14.11	15.29	16.46	17.64	18.82	19.99	21.17	22.35	23.52	24.70	25.88	27.05	28.23	29.41	30.58	31.76	32.93	34.11	35.29
16 per ct.	1.18	2.38	3.57	4.76	5.95	7.14	8.33	9.52	10.71	11.90	13.09	14.28	15.47	16.66	17.85	19.04	20.23	21.42	22.61	23.80	24.99	26.18	27.37	28.56	29.76	30.95	32.14	33.33	34.52	35.71
17 per ct.	1.20	2.40	3.61	4.81	6.02	7.22	8.43	9.63	10.84	12.04	13.25	14.45	15.66	16.86	18.07	19.27	20.48	21.68	22.89	24.09	25.30	26.50	27.71	28.91	30.12	31.32	32.53	33.73	34.93	36.14
18 per ct.	1.21	2.43	3.65	4.87	6.09	7.31	8.53	9.75	10.97	12.19	13.41	14.63	15.85	17.07	18.29	19.51	20.73	21.95	23.17	24.39	25.60	26.82	28.04	29.26	30.48	31.70	32.92	34.14	35.36	36.58
19 per ct.	1.23	2.46	3.70	4.93	6.17	7.40	8.64	9.87	11.11	12.34	13.57	14.81	16.04	17.28	18.51	19.75	20.98	22.22	23.45	24.69	25.92	27.15	28.39	29.62	30.86	32.09	33.33	34.56	35.80	37.03
20 per ct.	1.25	2.50	3.75	5.00	6.25	7.50	8.75	10.00	11.25	12.50	13.75	15.00	16.25	17.50	18.75	20.00	21.25	22.50	23.75	25.00	26.25	27.50	28.75	30.00	31.25	32.50	33.75	35.00	36.25	37.50
21 per ct.	1.26	2.53	3.79	5.06	6.32	7.59	8.86	10.12	11.39	12.65	13.92	15.18	16.45	17.72	18.98	20.25	21.51	22.78	24.05	25.31	26.58	27.84	29.11	30.37	31.64	32.91	34.17	35.44	36.70	37.97
22 per ct.	1.28	2.56	3.84	5.12	6.41	7.69	8.97	10.25	11.53	12.82	14.10	15.38	16.66	17.94	19.23	20.51	21.79	23.07	24.35	25.64	26.92	28.20	29.48	30.76	32.05	33.33	34.61	35.89	37.17	38.46
23 per ct.	1.29	2.58	3.89	5.19	6.49	7.79	9.09	10.38	11.68	12.98	14.28	15.58	16.88	18.18	19.48	20.77	22.07	23.37	24.67	25.97	27.27	28.57	29.87	31.16	32.46	33.76	35.06	36.36	37.66	38.96
24 per ct.	1.31	2.63	3.94	5.26	6.57	7.89	9.21	10.52	11.84	13.15	14.47	15.78	17.10	18.42	19.73	21.05	22.36	23.68	25.00	26.31	27.63	28.94	30.26	31.57	32.89	34.20	35.52	36.83	38.15	39.47
25 per ct.	1.33	2.66	4.00	5.33	6.66	8.00	9.33	10.66	12.00	13.33	14.66	16.00	17.33	18.66	20.00	21.33	22.66	24.00	25.33	26.66	28.00	29.33	30.66	32.00	33.33	34.46	36.00	37.33	38.66	40.00

Table For Calculating Shrinkage—See Opposite Page.

difference between the equivalents for the two whole numbers on either side of the fraction to the equivalent for the smaller whole number. Use the same process with other fractions in their respective ratios. This is a simple mental operation and can readily be performed.

INTERESTING FACTS ABOUT HAVANA TOBACCO.

The Weight of a Bale.—The weight of Havana tobacco bales varies. The finest wrapper grades contain from fifty to seventy-five pounds to the bale. In Remedios, which is purely a filler type, the bales average about 135 pounds and sometimes run as high as 175 pounds. In Partido and Vuelta Abajo fillers, the bales run from eighty to 110 pounds.

Meaning of a Hand.—The finest wrapper grades of Havana tobacco are packed twenty-eight leaves to the hand, the number of leaves increasing in the cheaper grades. In the second grade of wrappers, the hands contain about thirty leaves; the third grade is packed thirty-five leaves to the hand, the fourth grade thirty-five leaves to the hand, the fourth grade thirty-five, etc., until in the sixth grade, a hand contains fifty leaves. The leaves in hands of filler are not counted, but a filler hand contains from fifty to seventy-five leaves, according to the size of the leaf.

Four hands of either filler or wrapper are tied together into a bundle known as a carrot, and eighty corrots make a bale.

The Government allows twenty-five pounds of unstemmed or fifteen pounds of stemmed tobacco for 1,000 cigars. This is said to be a liberal estimate. It will be seen that the government allows forty per cent. of waste in stems, cuttings, etc., in stripping the tobacco.

Cigar manufacturers usually count upon getting about 4,500 cigars from a bale of Havana tobacco.

What "Yaguas" Is.—The wood fibre in which bales of Havana tobacco are packed is the bark of the Royal Palm which is shed, in sections, once a month. This bark is called *yaguas* and is collected by the

natives of Cuba and sold to the tobacco packers for that purpose. Bast, or *mahaguas,* is the strip of bark that is tied around a carrot.

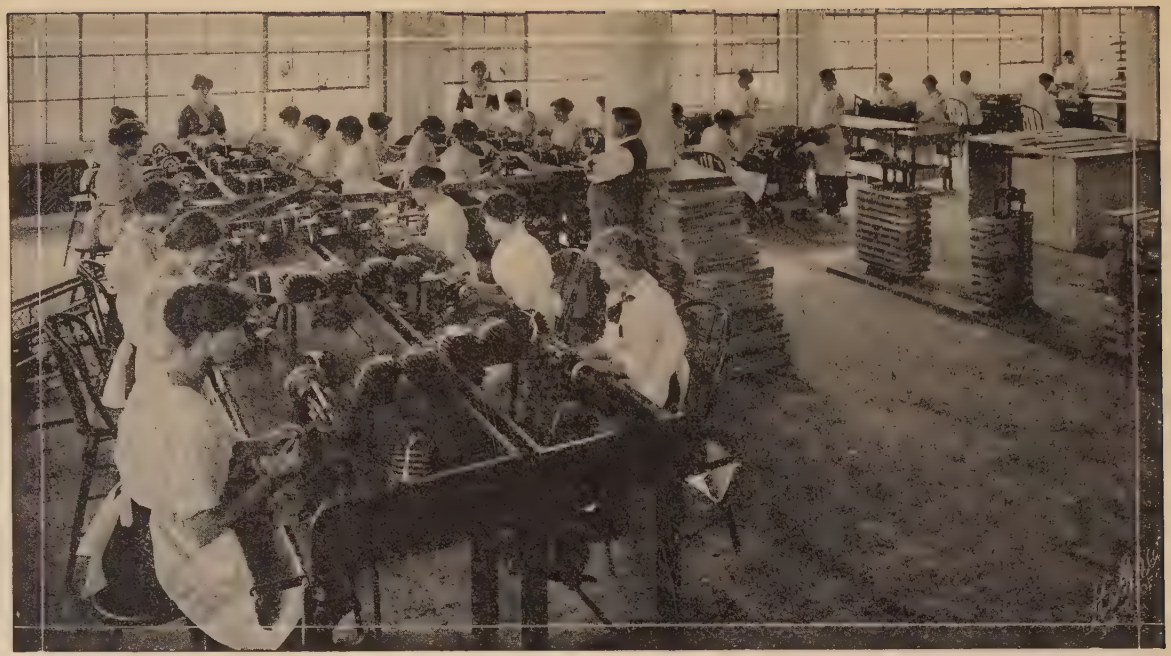
Meaning of Capaduras.—First and second capaduras are the choice grades of Remedios Cuban tobacco and are composed of the leaves grown midway between the top and bottom of the stalk. The lowest leaves of a plant of tobacco, while the largest, have less body than leaves growing further up on the plant, and are used for binder or cigarette purposes according to whether they are whole or broken. First capaduras are the largest leaves that have body and quality and second capaduras are the smaller leaves with the requisite character. The top leaves of the plant go into the inferior grades. Remedios is filler tobacco, and under the regulations of the United States customs service, pays only filler duty, regardless of the size of the leaves.

"Havana Tobacco" a Misnomer.—The expression Havana tobacco is, in a sense, a misnomer, as but very little tobacco is actually grown in the province of Havana. Time and usage have given the name of Havana to all tobacco grown on the island of Cuba.

TO LIGHT A CIGARETTE IN THE WIND.

Here is a clever method of lighting a cigar or a cigarette in the wind. The directions are as follows:

Lay the match along the cigarette (or cigar) so that the match projects no more than the length of the head beyond the end of the cigarette, holding the match tightly against the cigarette with the thumb and two fingers. Place the cigarette in the mouth. Then draw the match-box across the end of the match so as to light it, at the same time drawing in on the cigarette. No matter how hard the wind is blowing this will ignite the cigarette every time. The smoker may get a faint taste of the sulphur, but after the first puff or two this will disappear, and more frequently he will not taste it at all.



Making complete cigars by machinery is not common, but here is such a factory in operation

THE PRODUCTION OF CHEWING, SMOKING AND SNUFF, BY DISTRICTS, IN 1912.

State	Dis-trist. *Pounds.*	Plug. *Pounds.*	Twist and other forms of leaf. *Pounds.*	Fine-cut. *Pounds.*	Smoking. *Pounds.*	Snuff. *Pounds.*
Alabama	..	.....	981	.....	224	.....
Arkansas	..	.....	.....	.....	634	.....
California	1	5,292	.....	.....	146,239	52
Do	6	.....	.....	.....	18,118	.....
Total	..	5,292	.....	.....	164,357	52
Colorado	..	.....	.....	.....	66,008	.....
Connecticut	..	.....	.....	.....	138,639	.....
Florida	..	.....	.....	.....	27,337	.....
Georgia	..	.....	.....	.....	6,186	.....
Illinois	1	30,053	3,736	4,241,535	15,382,723	5,441,073
Do	5	.....	.....	.....	61,426	.....
Do	8	260,908	56,510	.....	247,775	.....
Do	13	.....	.....	.....	20,111	.....
Total	..	290,961	63,246	4,241,535	15,712,035	5,441,073
Indiana	6	.....	.....	.....	196,595	15,775
Do	7	.....	509,315	.....	44,472	.....
Total	..	.....	509,315	.....	241,067	15,775
Iowa	3	.....	.....	49,711	680,233	.....
Do	4	.....	.....	.....	285,135	.....
Total	..	.....	.....	49,711	965,368	.....
Kansas	..	.....	.....	.....	69,211	412

Kentucky	2	603,463	1,695,877	.....	228,022	.....
Do	5	16,501,259	1,038,802	1,539	12,595,083	.....
Do	6	122,293	844,011	118,329	1,672,833	.....
Do	7	61,168	119,111	.....	17,594	.....
Do	8	.....	27,226	.....	.....	.....
Total	..	17,288,183	3,725,027	119,868	14,513,532	.....
Louisiana	..	.....	174,321	.....	2,881,035	17,022
Maryland	..	.....	.....	.....	12,311,819	2,028,061
Massachusetts	..	.....	.....	.....	202,568	176,903
Michigan	1	5,689,773	64,776	1,741,880	18,009,564	101,265
Do	4	.....	.....	.....	72,289	1,119
Total	..	5,689,773	64,776	1,741,880	18,081,853	102,384
Minnseota	..	.....	.....	.....	215,412	.....
Missouri	1	62,044,981	7,650,331	.....	3,390,747	3,812
Do	6	72	30,759	.....	99,716	.....
Total	..	62,045,053	7,681,090	.....	3,490,463	3,812
Montana	..	.....	.....	.....	15,914	.....
Nebraska	..	.....	.....	.....	82,363	.....
New Hampshire	..	.....	.....	.....	9,906	.....
New Jersey	1	.....	.....	.....	16,202	.....
Do	5	8,745,200	.....	3,429,346	22,923,883	8,487,398
Total	..	8,745,200	.....	3,429,346	22,940,085	8,487,398
New Mexico	..	.....	.....	.....	17,055	.....
New York	1	.....	1,090	.....	604,296	4,499
Do	2	.....	.....	1,217,536	4,905,009	.....
Do	3	.....	.....	26,016	1,636,748	56,732
Do	14	.....	.....	142,051	1,383,499	.....
Do	21	.....	.....	38,195	1,295,713	.....
Do	28	.....	.....	.....	752,456	20,049
Total	..	.....	1,090	1,423,798	10 577,721	81,280

		Plug.	Twist and other forms of leaf.	Fine-cut.	Smoking.	Snuff.
North Carolina....	4	4,077,892	1,320	.....	30,631,313	.....
Do	5	42,488,833	47,440	.....	19,299,221	.....
Total	..	46,566,725	48,760	.....	49,930,534	.....
No. and So. Dakota	..	.....	.....	.....	12,643	.....
Ohio	1	9,065,772	293,937	.....	23,369,412	44
Do	10	.....	.....	.....	8,761,545	.....
Do	11	.....	.....	.....	9,572	.....
Do	18	.....	.....	.....	395,610	940
Total	..	9,065,772	293,937	.....	32,536,139	984
Oklahoma	..	.....	14	58	1,418	.....
Oregon	..	.....	.....	.....	15,396	.....
Pennsylvania	1	.....	.....	.....	1,117,463	.....
Do	9	.....	.....	.....	3,835,995	3,401
Do	23	.....	.....	.....	91,999	6,705
Total	..	.....	.....	.....	5,045,457	10,106
Tennessee	..	649,750	2,720,294	.....	382,908	14,968,132
Texas	3	.....	.....	.....	77,003	.....
Virginia	2	6,853,615	123,709	.....	12,480,368	.....
Do	6	3,047,871	114,279	365	101,332	.....
Total	..	9,901,486	237,988	365	12,581,700	.....
Washington	..	.....	.....	.....	15,009	.....
West Virginia.....	..	.....	6,864	.....	7,261,145	.....
Wisconsin	1	.....	3,430	.....	6,556,828	30,257
Do	2	.....	.....	.....	183,437	.....
Total*	..	.....	3,430	.....	6,740,265	30,257
Total, calendar year, 1912.....	..	160,248,195	15,531,133	11,006,561	217,330,409	31,363,651

PRODUCTION OF CIGARS AND CIGARETTES, BY DISTRICTS, IN 1912.

Cigars.

State.	District.	Number of factories.	Cigars manufactured.	
			Weighing more than 3 pounds per 1,000.	Weighing not more than 3 pounds per 1,000.
Alabama	....	65	4,905,248	.....
Arkansas	....	23	2,080,637	.....
California	1	382	45,787,047	20,000
Do	6	134	15,989,865	.....
Total	....	516	61,776,912	20,000
Colorado	....	149	17,241,920	.....
Connecticut	....	420	93,521,019	20,000
Florida	....	455	347,421,984	.....
Georgia	....	107	17,466,153	.....
Hawaii	....	2	63,050	.....
Illinois	1	1,512	229,857,217	22,500
Do	5	142	26,624,830	.....
Do	8	422	60,673,869	.....
Do	13	179	17,022,816	.....
Total	....	2,255	334,178,732	22,500
Indiana	6	441	80,594,535	.....
Do	7	133	70,148,246	.....
Total	....	574	150,742,781	.....
Iowa	3	138	17,567,012	.....
Do	4	263	66,969,091	121,200
Total	....	401	84,536,103	121,200
Kansas	....	167	19,581,596	.....
Kentucky	2	18	2,561,558	.....
Do	5	109	45,965,244	.....
Do	6	71	6,188,425	.....
Do	7	17	2,689,131	.....
Do	8	3	102,500	.....
Total	....	218	57,506,858	.....
Louisiana	....	71	39,275,232	.....
Maryland	....	432	124,588,635	521,646,210
Massachusetts	3	451	202,683,006	16,000
Michigan	1	559	283,494,358	5,800
Do	4	335	53,676,330	.....
Total	....	894	337,170,688	5,800
Minnesota	....	409	64,369,537	1,500

Missouri	1	399	45,917,551	
Do	6	167	20,342,565	
Total	....	566	66,260,116	
Montana	....	160	11,342,783	
Nebraska	....	168	28,926,809	
New Hampshire	....	206	53,466,570	
New Jersey	1	129	73,296,330	
Do	5	463	426,046,812	76,427,940
Total	....	592	499,343,142	76,427,940
New Mexico	....	25	2,541,397	
New York	1	1,117	134,430,540	61,040,460
Do	2	321	125,393,725	11,548,050
Do	3	1,073	532,346,266	6,978,165
Do	14	736	131,350,762	
Do	21	504	172,406,856	
Do	28	574	54,756,591	600
Total	....	4,325	1,150,684,740	79,567,275
North Carolina	4	27	44,053,855	25,200
Do	5	4	145,275	
Total	....	31	44,199,130	25,200
North and South Dakota	....	100	11,236,145	
Ohio	1	474	196,410,196	8,000
Do	10	258	145,190,619	
Do	11	195	123,974,631	
Do	18	596	189,800,718	2,000
Total	....	1,523	655,376,164	10,000
Oklahoma	....	45	3,133,475	
Oregon	....	96	8,718,490	
Pennsylvania	1	1,135	748,555,111	243,734,840
Do	9	1,981	848,493,441	771,600
Do	23	501	365,412,022	104,250
Total	....	3,677	1,962,460,574	244,610,690
Tennessee	....	46	9,849,260	
Texas	3	85	13,250,267	36,550
Virginia	2	59	270,836,908	4,347,650
Do	6	40	9,185,624	128,312,980
Total	....	99	280,022,532	132,660,630
Washington	....	147	11,785,291	
West Virginia	....	128	151,725,642	
Wisconsin	1	645	84,400,882	
Do	2	282	36,423,735	
Total	....	927	120,824,617	
Total, calendar year 1912	....	20,555	7,044,257,235	1,055,191,495
Total, calendar year 1911	....	21,265	7,048,505,033	1,213,832,840
Increase				
Decrease	....	710	4,247,798	158,641,345

Cigarettes.

State or Territory.	District.	Number of factories.	Cigarettes manufactured.	
			Weighing more than 3 pounds per 1,000.	Weighing not more than 3 pounds per 1,000.
California	1	11	29,200	160,746,430
Do	6	4	13,500	478,080
Colorado	....	1	.....	14,500
Connecticut	....	11	10,300	1,521,100
Florida	....	19	.....	9,274,240
Georgia	....	2	5,900	47,000
Illinois	1	42	52,440	3,004,620
Louisiana	....	3	.....	677,391,115
Maryland	....	6	4,850	355,140
Massachusetts	....	32	271,584	44,309,419
Michigan	1	3	.....	91,000
Do	4	1	.....	7,410
Missouri	1	3	.....	1,409,900
New Hampshire	....	3	3,500	357,500
New Jersey	1	1	.....	26,000
Do	5	12	1,813,000	938,345,020
New York	1	55	700	2,491,654,128
Do	2	66	3,588,760	2,258,307,145
Do	3	124	10,599,130	2,332,179,923
Do	14	8	92,050	290,360
Do	28	2	2,000	3,297,120
North Carolina	4	3	.....	1,547,268,500
Ohio	18	1	.....	12,000
Pennsylvania	1	43	113,470	109,412,475
Do	9	1	.....	67,000
Texas	3	5	.....	624,210
Virginia	2	5	.....	2,578,487,780
Do	6	1	.....	8,108,400
Washington	....	1	.....	6,000
Total	....	469	16,600,384	13,167,093,515
Calendar year 1911	....	478	17,058,718	10,469,321,101
Increase	....	.....	.....	2,697,772,414
Decrease	....	9	458,334	.....

TEN YEARS PRODUCTION.

Year.	Cigars.		Cigarettes.	
	Weighing more than 3 pounds per thousand.	Weighing not more than 3 pounds per thousand.	Weighing more than 3 pounds per thousand.	Weighing not more than 3 pounds per thousand.
1903	6,806,017,429	592,406,721	6,391,476	3,360,095,239
1904	6,640,482,483	736,187,259	7,103,193	3,426,890,229
1905	6,747,869,277	803,641,616	6,913,138	3,666,814,273
1906	7,147,548,312	989,751,253	10,742,354	4,501,254,783
1907	7,302,029,811	1,074,083,976	14,984,493	5,255,572,445
1908	6,488,907,269	1,072,512,540	17,668,772	5,742,832,524
1909	6,667,774,915	1,043,023,559	17,794,163	6,818,858,272
1910	6,810,098,416	1,118,135,635	19,374,077	8,644,335,407
1911	7,048,505,033	1,213,832,840	17,058,718	10,469,321,101
1912	7,044,257,235	1,055,191,495	16,600,384	13,167,093,515

FORMING AND PACKING TRIANGULARES

In forming Triangulares cigars the bundles are not pressed in molds. The cigars, when they come from the cigarmaker, are placed in triangle molds and left there for forty-eight hours. During that time each cigar is turned in the mold three times. They are then tied into bundles, put into the boxes and put into the press like any cigars.

PACKING SMOKING TOBACCO

In packing granulated tobaccos, manufacturers use a hollow tin mold around which they wrap the wax paper. The mold is put into the can and then the tobacco is packed into the mold. After this a plunger is inserted in the mold and the mold drawn out, leaving the tobacco and wax paper in the can. The plunger holds the tobacco while the mold is drawn out.

SHIPPING CIGARS INTO CANADA

The import duty on cigars and stogies imported into Canada is three dollars per pound and, twenty-five per cent. ad valorem. The internal revenue in Canada for domestic manufactured cigars is two dollars per thousand, but on imported cigars there is no internal revenue charged. The duty, as stated above, is all that is charged. The American manufacturer shipping stogies into Canada should ship the same as he would ship any ordinary article, consigning them to a broker or consignee, mailing three invoices, two of which require a stamp certifying that the article charged is at the ordinary price, and that it is in conformity with the third invoice. This third invoice is the one used for the office, and the other two have to accompany customs entry in Canada.

Customs Receipts From Tobacco.

The Customs duties on tobacco imported into the United States amount to about $24,000,000 annually.

OTHER FACTS AND FIGURES.

During the fiscal year, ended June 30, 1914, the pipe manufacturers of this country imported briar wood, briar root and laurel root to the value of $241,493.

In the same period there were imported pipes and smokers' articles amounting to $565,500. Cigarette-paper books valued at $209,371

The tobacco manufacturers of the United States use about 45,000,000 pounds of licorice and nearly the same quantity of sugar, for flavoring and sweetening their product, every year.